

May 9, 2023

ADDENDUM NO. 1

RE: Item #1, May 17, 2023 Letting - NH 0018(157)438, PCN 6923, Lincoln County - Grading, PCC Surfacing, Asphalt Concrete Surfacing & Replace Str RCBC (2 - 9'x5' Precast or CIP; 2 - 12'x5' CIP RCBC)

TO WHOM IT MAY CONCERN:

The following addenda to the plans shall be inserted and made a part of your proposal for the referenced project.

SPECIAL PROVISIONS: Please remove the Index of Special Provisions and replace with attached Index of Special Provisions revised 5/3/23.

Please remove the "Special Provision Regarding Restricted Work at Drainage Crossings or Wetlands", dated 4/21/23 and replace with the "Special Provision Regarding Section 404 of the Clean Water Act", dated 5/3/23 and "Fact Sheet #21".

SDEBS BID PROPOSAL: *The electronic bid proposal for this contract has been revised to include the changes associated with this addendum. Bidders must log in to the SDEBS to retrieve and incorporate these changes into their bid.*

Bid Items were added:

Bid Item 620E0515 "Type 1A Temporary Fence"
Bid Item 671E6008 "Type A8 Manhole Frame and Lid"

Quantities for Bid Items were changed:

Bid Item 110E0600 "Remove Fence" changed from 24,578 to 23,044 Ft
Bid Item 110E1690 "Remove Sediment" changed from 9.8 to 9.6 CuYd
Bid Item 110E1695 "Remove Sediment Filter Bag" changed from 348 to 324 Ft
Bid Item 120E6200 "Water for Granular Material" changed from 2,239.0 to 2,243.8 Mgal
Bid Item 230E0010 "Placing Topsoil" changed from 81,346 to 81,403 CuYd
Bid Item 260E1010 "Base Course" changed from 13,261.6 to 13,361.4 Ton
Bid Item 260E2010 "Gravel Cushion" changed from 32,243.8 to 32,547.3 Ton
Bid Item 320E0008 "PG 64-34 Asphalt Binder" changed from 888.9 to 893.5 Ton
Bid Item 320E1050 "Class E Asphalt Concrete" changed from 15,601.0 to 15,683.4 Ton
Bid Item 330E0010 "MC-70 Asphalt for Prime" changed from 115.4 to 115.8 Ton
Bid Item 330E0210 "SS-1h or CSS-1h Asphalt for Flush Seal" changed from 18.3 to 18.4 Ton
Bid Item 330E2000 "Sand for Flush Seal" changed from to 275.4 to 276.9 Ton
Bid Item 450E0122 "18" RCP Class 2, Furnish" changed from 56 to 48 Ft
Bid Item 450E0130 "18" RCP, Install" changed from 56 to 48 Ft

Bid Item 450E2008 "18" RCP Flared End, Furnish" changed from 3 to 2 Each
Bid Item 450E2009 "18" RCP Flared End, Install" changed from 3 to 2 Each
Bid Item 450E4759 "18" CMP 16 Gauge, Furnish" changed from 806 to 856 Ft
Bid Item 450E4760 "18" CMP 16 Gauge, Install" changed from 806 to 856 Ft
Bid Item 450E5406 "18" CMP Safety End, Furnish" changed from 26 to 28 Each
Bid Item 450E5407 "18" CMP Safety End, Install" changed from 26 to 28 Each
Bid Item 462E0100 "Class M6 Concrete" changed from 52.6 to 52.3 CuYd
Bid Item 464E0100 "Controlled Density Fill" changed from 781.1 to 783.2 CuYd
Bid Item 480E0100 "Reinforcing Steel" changed from 69,881 to 69,737 Lb
Bid Item 620E0020 "Type 2 Right-of-Way Fence" changed from 14,006 to 13,960 Ft
Bid Item 620E1020 "2 Post Panel" changed from 127 to 124 Each
Bid Item 620E1030 "3 Post Panel" changed from 18 to 20 Each
Bid Item 632E1340 "2.5"x2.5" Perforated Tube Post" changed from 760.7 to 613.7 Ft
Bid Item 634E0340 "Temporary Raised Pavement Markers" changed from 22.2 to 22.6 Mile
Bid Item 634E0380 "Tubular Marker" changed from 1,350 to 4,110 Each
Bid Item 634E0630 "Temporary Pavement Marking" changed from 85.5 to 82.2 Mile
Bid Item 650E1080 "Type F68 Concrete Curb and Gutter" changed from 3,013 to 2,337 Ft
Bid Item 670E1200 "Type B Frame and Grate" changed from 4 to 3 Each
Bid Item 670E5400 "Precast Drop Inlet Collar" changed from 4 to 3 Each
Bid Item 730E0202 "Type B Permanent Seed Mixture" changed from 2,430 to 2,432 Lb
Bid Item 731E0200 "Fertilizing" changed from 67.50 to 67.60 Ton
Bid Item 734E0180 "Sediment Filter Bag" changed from 348 to 324 Ft
Bid Item 734E0845 "Sediment Control at Inlet with Frame and Grate" changed from 9 to 8 Each

Bid Items were removed:

Bid Item 632E1330 "2.25"x2.25" Perforated Tube Post"
Bid Item 671E6007 "Type A7 Manhole Frame and Lid"

PLANS: Please destroy sheets A2-A4, B2, B3, B8-B11, B15-B19, B23-B27, B38, B46, B47, B52, B53, B56-B58, B66-B70, B74-B76, B78, B112-B117, C2, C4, C7, D2, D4-D6, D29, D30, F2, F4, F8, F9, F11, F18-F21, F58, F59, F85-F93, S2, X51, X52, X55, X56, Z3, Z4, Z6, Z7, Z14 and Z19 and replace with the enclosed sheets, dated 5/1/23 and 5/8/23.

Sheets A2 & B2: Bid Items were added:

Bid Item 620E0515 "Type 1A Temporary Fence"
Bid Item 671E6008 "Type A8 Manhole Frame and Lid"

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to 18.4 Ton
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Sheets A4 & S2: Bid Items were added:

Bid Item 632E1340 "2.5"x2.5" Perforated Tube Post"

Bid Items were removed:

Bid Item 632E1330 "2.25"x2.25" Perforated Tube Post"

Sheet B3: TABLE OF CLEARING was revised. Station offsets were revised for Stations 324+25 to 325+19, 326+90 to 328+41, 328+55 to 330+73, and 330+92 to 330+93.

- Sheet B8:** INCIDENTAL WORK, GRADING table was revised. Plug well at Sta 238+99 was added. Salvage fence & gate from Sta 383+81 to 385+00 were removed.
- Sheet B9:** PLUG WELL note was revised.
- Sheet B10:** TABLE OF CONTROLLED DENSITY FILL FOR PIPE table was revised.
- Sheet B11:** TABLE OF DROP INLETS AND QUANTITIES and TABLE OF JUNCTION BOXES AND QUANTITIES were revised.
- Sheets B15 & B16:** PIPE QUANTITIES table was revised.
- Sheets B17 & B18:** PAVEMENT, CURB AND GUTTER, AND SIDEWALK QUANTITIES table was revised.
- Sheet B19:** FENCE QUANTITIES table was revised.
- Sheet B23-B27:** PROPOSED US HIGHWAY 18 TYPICAL SECTIONS were revised.
- Sheet B38:** Permanent fence on Parcels 2 and 5 was removed.
- Sheets B46 & B47:** Sta 148+00 Junction Box was revised.
- Sheets B52 & B53:** Sta 199+22 Junction Box was revised.
- Sheets B56 & B57:** Sta 226+50 Junction Box was revised.
- Sheet B58:** Plug Existing Well at Sta 238+99-86'L (Incidental Work, Grading) note was added.
- Sheets B66 & B67:** Added approach at 308+17R, and revised fencing and pipe to accommodate approach entrance.
- Sheets B68-B70:** Fence, curb and gutter and drop inlet adjacent to parcel 33 were revised.
- Sheets B74 & B75:** Sta 357+50 Junction Box was revised.
- Sheets B76 & B78:** Salvage Existing Vinyl Fence and Gate notes were removed.
- Sheets B112 – B117:** Special Junction Box details were revised.
- Sheet C4:** TEMPORARY PAVEMENT MARKING note was revised.
- Sheet C7:** OTHER TRAFFIC CONTROL QUANTITIES table was revised.
- Sheet D2:** PLACING TOPSOIL note was revised.
- Sheet D4:** TABLE OF HIGH FLOW SILT FENCE was revised.
- Sheet D5:** TABLE OF INTERIM SEDIMENT CONTROL AT INLETS, MANHOLES, AND JUNCTION BOXES AFTER SURFACING REMOVAL AND BEFORE PLACEMENT OF SURFACING was revised.

- Sheet D6:** TABLE OF SEDIMENT CONTROL AT INLETS WITH FRAMES AND GRATES was revised.
- Sheet D29:** High Flow Silt Fence at 308+17R was added.
- Sheets D30:** Sediment control at Sta 324+21'R was removed.
- Sheet F4:** SUMMARY OF CLASS E ASPHALT CONCRETE COMPACTION table was revised.
- Sheet F8:** US18 OUTSIDE SHOULDERS stationing was revised.
- Sheet F9:** TABLE OF ADDITIONAL QUANTITIES was revised.
- Sheet F11:** TABLE OF ADDITIONAL QUANTITIES and Surfacing for Intersecting Roads and Entrances table were revised.
- Sheets F18 – F21:** TYPICAL SURFACING SECTIONS were revised.
- Sheets F58 & F59:** PCC PAVEMENT JOINT LAYOUT was revised.
- Sheets F85 – F93:** STANDARD PLATES were revised.
- Sheets X51 & X52:** Sta 307+57 and Sta 308+00 were revised.
- Sheets X55 & X56:** Curb & Gutter on right was removed from Sta 325+00 to Sta 330+00.
- Sheets Z3, Z4, Z6 & Z7:** Junction Box notes were revised.
- Sheet Z14:** Drop Inlet at Sta 324+20.62 was removed. Pipe at Sta 308+17R was added.
- Sheet Z19:** FL, STA & Offset info for Sta 452+92 was corrected.

Sincerely,

Sam Weisgram
Engineering Supervisor

SW/cj

CC: Travis Dressen, Mitchell Region Engineer
Harry Johnston, Sioux Falls Area Engineer

REV 5/3/23

INDEX OF SPECIAL PROVISIONS

PROJECT NUMBER(S): NH 0018(157)438 PCN: 6923

TYPE OF WORK: GRADING, PCC SURFACING, ASPHALT CONCRETE SURFACING & REPLACE STR RCBC (2 - 9'X5' PRECAST OR CIP; 2 - 12'X5' CIP RCBC)

COUNTY: LINCOLN

The following clauses have been prepared subsequent to the Standard Specifications for Roads and Bridges and refer only to the above described improvement, for which the following Proposal is made.

The Contractor's attention is directed to the need for securing from the Department of Environment & Natural Resources, Foss Building, Pierre, South Dakota, permission to remove water from public sources (lakes, rivers, streams, etc.). The Contractor should make his request as early as possible after receiving his contract, and insofar as possible at least 30 days prior to the date that the water is to be used.

Sara Garbe is the official in charge of the Sioux Falls Career Center for Lincoln County.

THE FOLLOWING ITEMS ARE INCLUDED IN THIS PROPOSAL FORM:

Special Provision for Contract Time, dated 4/5/23.

Special Provision for Prosecution and Progress, dated 1/21/21.

Special Provision for Cooperation by Contractor and Department, dated 8/17/17.

Special Provision for Traffic Control Supervisor, dated 4/3/23.

Special Provision for On-The-Job Training Program, dated 3/10/16.

Special Provision Regarding Right of Entry/Work Limits, dated 4/6/23.

Special Provision Regarding Section 404 of the Clean Water Act, dated 5/3/23.

Fact Sheet #23.

Special Provision for Contractor Furnished Mix Design for PCC Pavement, dated 8/30/18.

Special Provision for IRI PCC Pavement Smoothness, dated 10/1/18.

Special Provision for Contractor Staking with Machine Control Grading Option, dated 4/3/23.

List of Utilities.

Special Provision for Restriction on Contracts with Prohibited Entities, dated 1/25/23.
Special Provision for Buy America, dated 1/20/23.
Special Provision for Liability Insurance, dated 4/21/22.
Special Provision for Responsibility for Damage Claims, dated 4/21/22.
Special Provision for Grass Seed Substitution, dated 2/9/23.
Special Provision for Restriction of Boycott of Israel, dated 1/31/20.
Special Provision for Contractor Administered Preconstruction Meeting, dated 12/18/19.
Fuel Adjustment Affidavit, DOT form 208 dated 7/15.
Standard Title VI Assurance, dated 3/1/16.
Special Provision For Disadvantaged Business Enterprise, dated 8/14/18.
Special Provision For EEO Affirmative Action Requirements on Federal and Federal-Aid Construction Contracts, dated 9/1/97.
Special Provision For Required Contract Provisions Federal-Aid Construction Contracts, Form FHWA 1273 (Rev. July 5, 2022), dated 7/12/22.
Required Contract Provisions Federal-Aid Construction Contracts, Form FHWA 1273 (Rev. 7/5/22).
Special Provision Regarding Minimum Wage on Federal-Aid Projects, dated 10/24/19.
Wage and Hour Division US Department of Labor Washington DC. - US Dept. of Labor Decision Number SD20230032, dated 3/10/23.
Special Provision for Supplemental Specifications to 2015 Standard Specifications for Roads and Bridges, dated 9/7/22.
Special Provision for Price Schedule for Miscellaneous Items, dated 4/5/23.

Special Provision Regarding Storm Water Discharge, dated 5/8/18.
General Permit for Storm Water Discharges Associated with Construction Activities, dated 4/1/18
<https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/stormwater/StormWaterConstruction.aspx>

**STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION**

**SPECIAL PROVISION REGARDING
SECTION 404 OF
THE CLEAN WATER ACT**

**Project # NH 0018(157)438, PCN 6923
Lincoln County**

**MAY 3, 2023
NATIONWIDE PERMIT NO 23**

The above referenced project is authorized by the Department of the Army Nationwide Permit Section (23), found in the December 27, 2021 Federal Register (86 FR 73522), Reissuance and Modification of Nation Wide Permits.

The following general conditions must be adhered to in order for any authorization by a nationwide permit to be valid:

Please refer to the attached *Fact Sheet Nationwide Permit 23 and 2021 Nationwide Permits Regional Conditions*

The above authorization permits placement of fill in the drainage crossings or wetlands noted below:

Wetlands:

| <u>Station #</u> | | |
|------------------|-----------------|-----------------|
| 65+72 - 66+69 | 147+23 - 153+15 | 309+64 - 314+79 |
| 67+01 - 98+24 | 162+49 - 164+39 | 319+84 - 320+61 |
| 78+29 - 93+44 | 162+53 - 166+05 | 334+48 - 341+85 |
| 91+84 - 93+20 | 173+09 - 175+38 | 342+24 - 351+81 |
| 93+50 - 103+93 | 191+14 - 199+02 | 350+09 - 356+59 |
| 98+74 - 104+93 | 199+61 - 200+33 | 382+40 - 383+03 |
| 104+39 - 119+69 | 198+79 - 199+46 | 389+44 - 395+17 |
| 108+68 - 119+69 | 198+98 - 199+37 | 389+25 - 392+05 |
| 120+25 - 121+43 | 208+13 - 212+51 | 401+81 - 402+37 |
| 125+09 - 129+08 | 212+38 - 213+67 | 401+52 - 409+95 |
| 126+39 - 128+27 | 221+00 - 225+11 | 432+58 - 436+50 |
| 128+99 - 132+96 | 226+00 - 228+04 | 437+39 - 447+86 |
| 133+94 - 134+45 | 226+08 - 234+56 | 464+85 - 466+00 |
| 127+18 - 142+80 | 276+99 - 278+22 | |
| 131+73 - 143+85 | 285+62 - 286+07 | |

**PLEASE REFER TO THE TABLE OF WETLANDS IN THE SECTION A
ENVIRONMENTAL COMMITMENTS.**

Nationwide Permit 23
Approved Categorical Exclusions

Expires March 14, 2026

23. Approved Categorical Exclusions. Activities undertaken, assisted, authorized, regulated, funded, or financed, in whole or in part, by another Federal agency or department where:

- (a) That agency or department has determined, pursuant to the Council on Environmental Quality's implementing regulations for the National Environmental Policy Act (40 CFR part 1500 et seq.), that the activity is categorically excluded from the requirement to prepare an environmental impact statement or environmental assessment analysis, because it is included within a category of actions which neither individually nor cumulatively have a significant effect on the human environment; and
- (b) (b)The Office of the Chief of Engineers (Attn:CECW-CO)has concurred with that agency's or department's determination that the activity is categorically excluded and approved the activity for authorization under NWP 23.

The Office of the Chief of Engineers may require additional conditions, including pre-construction notification, for authorization of an agency's categorical exclusions under this NWP.

Notification: Certain categorical exclusions approved for authorization under this NWP require the permittee to submit a pre-construction notification to the district engineer prior to commencing the activity (see general condition 32). The activities that require pre-construction notification are listed in the appropriate Regulatory Guidance Letter(s). (Authorities: Sections 10 and 404)

Note: The agency or department may submit an application for an activity believed to be categorically excluded to the Office of the Chief of Engineers (Attn:CECW-CO). Prior to approval for authorization under this NWP of any agency's activity, the Office of the Chief of Engineers will solicit public comment. As of the date of issuance of this NWP, agencies with approved categorical exclusions are: the Bureau of Reclamation, Federal Highway Administration, and U.S. Coast Guard. Activities approved for authorization under this NWP as of the date of this notice are found in Corps Regulatory Guidance Letter 05-07. Any future approved categorical exclusions will be announced in Regulatory Guidance Letters and posted on this same web site.

Nationwide Permit General Conditions

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/or Coastal Zone Management Act consistency for an NWP. Every person who may wish to obtain permit authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of 33 CFR 330.1 through 330.6 apply to every NWP authorization. Note especially 33 CFR 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

1. Navigation. (a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his or her authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. Aquatic Life Movements. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species. If a bottomless culvert cannot be used, then the crossing should be designed and constructed to minimize adverse effects to aquatic life movements.

3. Spawning Areas. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. Migratory Bird Breeding Areas. Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. Shellfish Beds. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWP 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. Suitable Material. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act).

7. Water Supply Intakes. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. Management of Water Flows. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization, storm water management activities, and temporary and permanent road crossings, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. Fills Within 100-Year Floodplains. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. Equipment. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow, or during low tides.

13. Removal of Temporary Structures and Fills. Temporary structures must be removed, to the maximum extent practicable, after their use has been discontinued.

Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. Proper Maintenance. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. Single and Complete Project. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. Wild and Scenic Rivers. (a) No NWP activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a “study river” for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status.

(b) If a proposed NWP activity will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a “study river” for possible inclusion in the system while the river is in an official study status, the permittee must submit a pre-construction notification (see general condition 32). The district engineer will coordinate the PCN with the Federal agency with direct management responsibility for that river. Permittees shall not begin the NWP activity until notified by the district engineer that the Federal agency with direct management responsibility for that river has determined in writing that the proposed NWP activity will not adversely affect the Wild and Scenic River designation or study status.

(c) Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service). Information on these rivers is also available at: <http://www.rivers.gov/>.

17. Tribal Rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

18. Endangered Species. (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify designated critical habitat or critical habitat proposed for such designation. No activity is authorized under any NWP which “may affect” a listed species or critical habitat, unless ESA section 7 consultation addressing the consequences of the proposed activity on listed species or critical habitat has been completed. See 50 CFR

402.02 for the definition of “effects of the action” for the purposes of ESA section 7 consultation, as well as 50 CFR 402.17, which provides further explanation under ESA section 7 regarding “activities that are reasonably certain to occur” and “consequences caused by the proposed action.”

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA (see 33 CFR 330.4(f)(1)). If pre-construction notification is required for the proposed activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA section 7 consultation may be necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under section 7 of the ESA.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat or critical habitat proposed for such designation, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation), the pre-construction notification must include the name(s) of the endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or that utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. The district engineer will determine whether the proposed activity “may affect” or will have “no effect” to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps’ determination within 45 days of receipt of a complete pre-construction notification. For activities where the non-Federal applicant has identified listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) that might be affected or is in the vicinity of the activity, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification that the proposed activity will have “no effect” on listed species (or species proposed for listing or designated critical habitat (or critical habitat proposed for such designation), or until ESA section 7 consultation or conference has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation or conference with the FWS or NMFS the district engineer may add species-specific permit conditions to the NWP.

(e) Authorization of an activity by an NWP does not authorize the “take” of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with “incidental take”

provisions, etc.) from the FWS or the NMFS, the Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word "harm" in the definition of "take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) If the non-federal permittee has a valid ESA section 10(a)(1)(B) incidental take permit with an approved Habitat Conservation Plan for a project or a group of projects that includes the proposed NWP activity, the non-federal applicant should provide a copy of that ESA section 10(a)(1)(B) permit with the PCN required by paragraph (c) of this general condition. The district engineer will coordinate with the agency that issued the ESA section 10(a)(1)(B) permit to determine whether the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation conducted for the ESA section 10(a)(1)(B) permit. If that coordination results in concurrence from the agency that the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation for the ESA section 10(a)(1)(B) permit, the district engineer does not need to conduct a separate ESA section 7 consultation for the proposed NWP activity. The district engineer will notify the non-federal applicant within 45 days of receipt of a complete pre-construction notification whether the ESA section 10(a)(1)(B) permit covers the proposed NWP activity or whether additional ESA section 7 consultation is required.

(g) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the FWS and NMFS or their world wide web pages at <http://www.fws.gov/> or <http://www.fws.gov/ipac> and <http://www.nmfs.noaa.gov/pr/species/esa/> respectively.

19. Migratory Birds and Bald and Golden Eagles. The permittee is responsible for ensuring that an action authorized by an NWP complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The permittee is responsible for contacting the appropriate local office of the U.S. Fish and Wildlife Service to determine what measures, if any, are necessary or appropriate to reduce adverse effects to migratory birds or eagles, including whether "incidental take" permits are necessary and available under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act for a particular activity.

20. Historic Properties. (a) No activity is authorized under any NWP which may have the potential to cause effects to properties listed, or eligible for listing, in the National Register of Historic Places until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of section 106 of the National Historic Preservation Act (see 33 CFR

330.4(g)(1)). If pre-construction notification is required for the proposed NWP activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation is not submitted, then additional consultation under section 106 may be necessary. The respective federal agency is responsible for fulfilling its obligation to comply with section 106.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the NWP activity might have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties might have the potential to be affected by the proposed NWP activity or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of, or potential for, the presence of historic properties can be sought from the State Historic Preservation Officer, Tribal Historic Preservation Officer, or designated tribal representative, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts commensurate with potential impacts, which may include background research, consultation, oral history interviews, sample field investigation, and/or field survey. Based on the information submitted in the PCN and these identification efforts, the district engineer shall determine whether the proposed NWP activity has the potential to cause effects on the historic properties. Section 106 consultation is not required when the district engineer determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). Section 106 consultation is required when the district engineer determines that the activity has the potential to cause effects on historic properties. The district engineer will conduct consultation with consulting parties identified under 36 CFR 800.2(c) when he or she makes any of the following effect determinations for the purposes of section 106 of the NHPA: no historic properties affected, no adverse effect, or adverse effect.

(d) Where the non-Federal applicant has identified historic properties on which the proposed NWP activity might have the potential to cause effects and has so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects to historic properties or that NHPA section 106 consultation has been completed. For non-federal permittees, the district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA section 106 consultation is required. If NHPA section 106 consultation is required, the district engineer will notify the non-Federal applicant that he or she cannot begin the activity until section 106

consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (54 U.S.C. 306113) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. Discovery of Previously Unknown Remains and Artifacts. Permittees that discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by an NWP, they must immediately notify the district engineer of what they have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. Designated Critical Resource Waters. Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, 52, 57 and 58 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, 38, and 54, notification is required in accordance with general condition 32, for any activity proposed by permittees in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only

after she or he determines that the impacts to the critical resource waters will be no more than minimal.

23. Mitigation. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects.

(d) Compensatory mitigation at a minimum one-for-one ratio will be required for all losses of stream bed that exceed 3/100-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. This compensatory mitigation requirement may be satisfied through the restoration or enhancement of riparian areas next to streams in accordance with paragraph (e) of this general condition. For losses of stream bed of 3/100-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects. Compensatory mitigation for losses of streams should be provided, if practicable, through stream rehabilitation, enhancement, or preservation, since streams are difficult-to-replace resources (see 33 CFR 332.3(e)(3)).

(e) Compensatory mitigation plans for NWP activities in or near streams or other open waters will normally include a requirement for the restoration or enhancement, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, the restoration or maintenance/protection of riparian areas may be the only compensatory mitigation required. If restoring riparian areas involves planting vegetation, only native species should be planted. The width of the

required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to restore or maintain/protect a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or maintaining/protecting a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of minimization or compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(f) Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in no more than minimal adverse environmental effects. For the NWP, the preferred mechanism for providing compensatory mitigation is mitigation bank credits or in-lieu fee program credits (see 33 CFR 332.3(b)(2) and (3)). However, if an appropriate number and type of mitigation bank or in-lieu credits are not available at the time the PCN is submitted to the district engineer, the district engineer may approve the use of permittee-responsible mitigation.

(2) The amount of compensatory mitigation required by the district engineer must be sufficient to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see 33 CFR 330.1(e)(3)). (See also 33 CFR 332.3(f).)

(3) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, aquatic resource restoration should be the first compensatory mitigation option considered for permittee-responsible mitigation.

(4) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) through (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)). If permittee-responsible mitigation is the proposed option, and the proposed compensatory mitigation site is located on land in which another federal agency holds an easement, the district engineer will coordinate with that federal agency

to determine if proposed compensatory mitigation project is compatible with the terms of the easement.

(5) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan needs to address only the baseline conditions at the impact site and the number of credits to be provided (see 33 CFR 332.4(c)(1)(ii)).

(6) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan (see 33 CFR 332.4(c)(1)(ii)).

(g) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any NWP activity resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that an NWP activity already meeting the established acreage limits also satisfies the no more than minimal impact requirement for the NWPs.

(h) Permittees may propose the use of mitigation banks, in-lieu fee programs, or permittee-responsible mitigation. When developing a compensatory mitigation proposal, the permittee must consider appropriate and practicable options consistent with the framework at 33 CFR 332.3(b). For activities resulting in the loss of marine or estuarine resources, permittee-responsible mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(i) Where certain functions and services of waters of the United States are permanently adversely affected by a regulated activity, such as discharges of dredged or fill material into waters of the United States that will convert a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse environmental effects of the activity to the no more than minimal level.

24. Safety of Impoundment Structures. To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state or federal, dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. Water Quality. (a) Where the certifying authority (state, authorized tribe, or EPA, as appropriate) has not previously certified compliance of an NWP with CWA section 401, a CWA section 401 water quality certification for the proposed discharge must be obtained or waived (see 33 CFR 330.4(c)). If the permittee cannot comply with all of the conditions of a water quality certification previously issued by certifying authority for the issuance of the NWP, then the permittee must obtain a water quality certification or waiver for the proposed discharge in order for the activity to be authorized by an NWP.

(b) If the NWP activity requires pre-construction notification and the certifying authority has not previously certified compliance of an NWP with CWA section 401, the proposed discharge is not authorized by an NWP until water quality certification is obtained or waived. If the certifying authority issues a water quality certification for the proposed discharge, the permittee must submit a copy of the certification to the district engineer. The discharge is not authorized by an NWP until the district engineer has notified the permittee that the water quality certification requirement has been satisfied by the issuance of a water quality certification or a waiver.

(c) The district engineer or certifying authority may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. Coastal Zone Management. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). If the permittee cannot comply with all of the conditions of a coastal zone management consistency concurrence previously issued by the state, then the permittee must obtain an individual coastal zone management consistency concurrence or presumption of concurrence in order for the activity to be authorized by an NWP. The district engineer or a state may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its CWA section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is authorized, subject to the following restrictions:

(a) If only one of the NWPs used to authorize the single and complete project has a specified acreage limit, the acreage loss of waters of the United States cannot exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank

stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

(b) If one or more of the NWPs used to authorize the single and complete project has specified acreage limits, the acreage loss of waters of the United States authorized by those NWPs cannot exceed their respective specified acreage limits. For example, if a commercial development is constructed under NWP 39, and the single and complete project includes the filling of an upland ditch authorized by NWP 46, the maximum acreage loss of waters of the United States for the commercial development under NWP 39 cannot exceed 1/2-acre, and the total acreage loss of waters of United States due to the NWP 39 and 46 activities cannot exceed 1 acre.

29. Transfer of Nationwide Permit Verifications. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

“When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.”

(Transferee)

(Date)

30. Compliance Certification. Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and implementation of any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

(a) A statement that the authorized activity was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

(b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and

(c) The signature of the permittee certifying the completion of the activity and mitigation.

The completed certification document must be submitted to the district engineer within 30 days of completion of the authorized activity or the implementation of any required compensatory mitigation, whichever occurs later.

31. Activities Affecting Structures or Works Built by the United States. If an NWP activity also requires review by, or permission from, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers (USACE) federally authorized Civil Works project (a "USACE project"), the prospective permittee must submit a pre-construction notification. See paragraph (b)(10) of general condition 32. An activity that requires section 408 permission and/or review is not authorized by an NWP until the appropriate Corps office issues the section 408 permission or completes its review to alter, occupy, or use the USACE project, and the district engineer issues a written NWP verification.

32. Pre-Construction Notification. (a) *Timing.* Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

(1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

(2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or are in the vicinity of the activity, or to notify the Corps pursuant to general condition 20 that the activity might have the potential to cause effects to historic properties, the permittee

cannot begin the activity until receiving written notification from the Corps that there is “no effect” on listed species or “no potential to cause effects” on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)) has been completed. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee’s right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) *Contents of Pre-Construction Notification:* The PCN must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed activity;

(3) Identify the specific NWP or NWP(s) the prospective permittee wants to use to authorize the proposed activity;

(4) (i) A description of the proposed activity; the activity’s purpose; direct and indirect adverse environmental effects the activity would cause, including the anticipated amount of loss of wetlands, other special aquatic sites, and other waters expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; a description of any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed activity; and any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings for linear projects that require Department of the Army authorization but do not require pre-construction notification. The description of the proposed activity and any proposed mitigation measures should be sufficiently detailed to allow the district engineer to determine that the adverse environmental effects of the activity will be no more than minimal and to determine the need for compensatory mitigation or other mitigation measures.

(ii) For linear projects where one or more single and complete crossings require pre-construction notification, the PCN must include the quantity of anticipated losses of wetlands, other special aquatic sites, and other waters for each single and complete crossing of those wetlands, other special aquatic sites, and other waters (including those single and complete crossings authorized by an NWP but do not require PCNs). This information will be used by the district engineer to evaluate the cumulative adverse environmental effects of the proposed linear project, and does not change those non-PCN NWP activities into NWP PCNs.

(iii) Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the activity and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

(5) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial and intermittent streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many wetlands, other special aquatic sites, and other waters. Furthermore, the 45-day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

(6) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse environmental effects are no more than minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(7) For non-federal permittees, if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat (or critical habitat proposed for such designation), the PCN must include the name(s) of those endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with the Endangered Species Act;

(8) For non-federal permittees, if the NWP activity might have the potential to cause effects to a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, the PCN must state which historic property might have the potential to be affected by the proposed activity or include a vicinity map indicating the location of the historic property. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with section 106 of the National Historic Preservation Act;

(9) For an activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible

inclusion in the system while the river is in an official study status, the PCN must identify the Wild and Scenic River or the “study river” (see general condition 16); and

(10) For an NWP activity that requires permission from, or review by, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, the pre-construction notification must include a statement confirming that the project proponent has submitted a written request for section 408 permission from, or review by, the Corps office having jurisdiction over that USACE project.

(c) *Form of Pre-Construction Notification:* The nationwide permit pre-construction notification form (Form ENG 6082) should be used for NWP PCNs. A letter containing the required information may also be used. Applicants may provide electronic files of PCNs and supporting materials if the district engineer has established tools and procedures for electronic submittals.

(d) *Agency Coordination:* (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity’s compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the activity’s adverse environmental effects so that they are no more than minimal.

(2) Agency coordination is required for: (i) all NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States; (ii) NWP 13 activities in excess of 500 linear feet, fills greater than one cubic yard per running foot, or involve discharges of dredged or fill material into special aquatic sites; and (iii) NWP 54 activities in excess of 500 linear feet, or that extend into the waterbody more than 30 feet from the mean low water line in tidal waters or the ordinary high water mark in the Great Lakes.

(3) When agency coordination is required, the district engineer will immediately provide (e.g., via e-mail, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (FWS, state natural resource or water quality agency, EPA, and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to notify the district engineer via telephone, facsimile transmission, or e-mail that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse environmental effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity’s compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure that the net adverse environmental effects of the proposed activity are no more than minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies’ concerns were

considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(4) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(5) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

District Engineer's Decision

1. In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. If a project proponent requests authorization by a specific NWP, the district engineer should issue the NWP verification for that activity if it meets the terms and conditions of that NWP, unless he or she determines, after considering mitigation, that the proposed activity will result in more than minimal individual and cumulative adverse effects on the aquatic environment and other aspects of the public interest and exercises discretionary authority to require an individual permit for the proposed activity. For a linear project, this determination will include an evaluation of the single and complete crossings of waters of the United States that require PCNs to determine whether they individually satisfy the terms and conditions of the NWP(s), as well as the cumulative effects caused by all of the crossings of waters of the United States authorized by an NWP. If an applicant requests a waiver of an applicable limit, as provided for in NWPs 13, 36, or 54, the district engineer will only grant the waiver upon a written determination that the NWP activity will result in only minimal individual and cumulative adverse environmental effects.

2. When making minimal adverse environmental effects determinations the district engineer will consider the direct and indirect effects caused by the NWP activity. He or she will also consider the cumulative adverse environmental effects caused by activities authorized by an NWP and whether those cumulative adverse environmental effects are no more than minimal. The district engineer will also consider site specific factors, such as the environmental setting in the vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic resource

functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer. If an appropriate functional or condition assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse environmental effects determination. The district engineer may add case-specific special conditions to the NWP authorization to address site-specific environmental concerns.

3. If the proposed activity requires a PCN and will result in a loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for NWP activities with smaller impacts, or for impacts to other types of waters. The district engineer will consider any proposed compensatory mitigation or other mitigation measures the applicant has included in the proposal in determining whether the net adverse environmental effects of the proposed activity are no more than minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse environmental effects are no more than minimal, after considering mitigation, the district engineer will notify the permittee and include any activity-specific conditions in the NWP verification the district engineer deems necessary. Conditions for compensatory mitigation requirements must comply with the appropriate provisions at 33 CFR 332.3(k). The district engineer must approve the final mitigation plan before the permittee commences work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the proposed compensatory mitigation plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure that the NWP activity results in no more than minimal adverse environmental effects. If the net adverse environmental effects of the NWP activity (after consideration of the mitigation proposal) are determined by the district engineer to be no more than minimal, the district engineer will provide a timely written response to the applicant. The response will state that the NWP activity can proceed under the terms and conditions of the NWP, including any activity-specific conditions added to the NWP authorization by the district engineer.

4. If the district engineer determines that the adverse environmental effects of the proposed activity are more than minimal, then the district engineer will notify the applicant either: (a) that the activity does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (b) that the activity is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal; or (c) that the activity is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse environmental effects, the activity will be authorized within the 45-day PCN period (unless additional time is

required to comply with general conditions 18, 20, and/or 31), with activity-specific conditions that state the mitigation requirements. The authorization will include the necessary conceptual or detailed mitigation plan or a requirement that the applicant submit a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal. When compensatory mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan or has determined that prior approval of a final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation.

Further Information

1. District engineers have authority to determine if an activity complies with the terms and conditions of an NWP.
2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.
3. NWPs do not grant any property rights or exclusive privileges.
4. NWPs do not authorize any injury to the property or rights of others.
5. NWPs do not authorize interference with any existing or proposed Federal project (see general condition 31).



**US Army Corps
of Engineers**®
Omaha District

**2021 Nationwide Permits
Regional Conditions
Omaha District
State of South Dakota**

The following Nationwide Permit (NWP) regional conditions will be used in the State of South Dakota. The issuance of the NWPs was announced in the January 13, 2021, issue of the Federal Register (86 FR 2744) and December 27, 2021, issue of the Federal Register (86 FR 73522). Regional conditions are placed on NWPs to ensure projects result in no more than minimal adverse impacts to the aquatic environment and to address local resources concerns.

A. PRECONSTRUCTION NOTIFICATION REQUIREMENTS APPLICABLE TO ALL NWPs OR LIMITED REVOCATION OF NWPs

For all NWPs, permittees must notify the Corps in accordance with General Condition 32 Preconstruction Notification (PCN) requirements for regulated activities located within or comprised of the following:

1. Wetlands Classified as Peatlands:

For the purposes of this condition, peatlands are permanently or seasonally waterlogged areas with a surface accumulation of peat (organic matter) 30 centimeters (12 inches) or more thick. Under cool, anaerobic, and acidic conditions, the rate of organic matter accumulation exceeds organic decay. Any peat-covered areas, including fens, bogs, and muskegs, are all peatlands.

- a. PCN required for NWP 3, 5, 20, 27, 30, 32, and 38.
- b. All NWPs not listed above are revoked for use in peatlands.

2. Waters Adjacent to Natural Springs:

PCN required for any regulated activity located within 100 feet of the water source in natural spring areas. For the purpose of this condition, a spring water source is defined as any location where there is flow emanating from a distinct point at any time during the growing season.

Springs do not include seeps and other groundwater discharge areas where there is no distinct point source of waters. Springs do not include drain tile outlets.

B. REQUIRED BEST MANAGEMENT PRACTICES APPLICABLE TO SOUTH DAKOTA

1. Suitable Material:

Permittees are reminded of General Condition No. 6 which prohibits use of unsuitable material. A list of materials prohibited or restricted as fill material in waters of the United States can be found at:

<http://www.nwo.usace.army.mil/Media/FactSheets/FactSheetArticleView/tabid/2034/Article/12320/prohibited-restricted-materials.aspx>

**2021 Nationwide Permits
Regional Conditions
Omaha District
State of South Dakota**

2. Culvert Countersink Depth:

For all NWP in jurisdictional streams and a stable stream bed, culvert stream crossings shall be installed with the culvert invert set below the natural stream channel flow line according to the table below. This regional condition does not apply in instances where the lowering of the culvert invert would allow a headcut to migrate upstream of the project into an unaffected stream reach or result in lowering the elevation of the stream reach.

| Culvert Type | Drainage Area | Minimum Distance Culvert Invert Shall Be Lowered Below Stream Flow Line |
|------------------------|----------------------|--|
| All culvert types | < 100 acres | Not required |
| Pipe diameter <8.0 ft | 100 to 640 acres | 1/2-ft |
| Pipe diameter <8.0 ft | >640 acres | 1-ft |
| Pipe diameter > 8.0 ft | All drainage sizes | 20% of pipe diameter |
| Box culvert | All drainage sizes | 1-ft |

- a. The stream flow line shall be defined as the longitudinal average of the low flow stream channel.
- b. The slope of the culvert should be parallel to the slope of the stream flow line.
- c. The culvert invert depression depth shall be measured at the culvert inlet for culverts installed at a slope less than the slope of the stream flow line.
- d. Riprap inlet and outlet protection shall be placed to match the height of the culvert invert.

SECTION B – GRADING
SECTION B – GRADING, Cont.
SECTION B – GRADING, Cont.

| BID ITEM NUMBER | ITEM | QUANTITY | UNIT |
|-----------------|--|-----------|------|
| 009E0010 | Mobilization | Lump Sum | LS |
| 009E3220 | Reestablish Right-of-Way and Property Corner | 205 | Each |
| 009E3225 | Reestablish Public Land Survey System Corner | 21 | Each |
| 009E3230 | Grade Staking | 37.880 | Mile |
| 009E3250 | Miscellaneous Staking | 8.078 | Mile |
| 009E3280 | Slope Staking | 8.078 | Mile |
| 009E3290 | Structure Staking | 2 | Each |
| 009E3301 | Engineer Directed Surveying/Staking | 40.0 | Hour |
| 009E4300 | Construction Schedule, Category III | Lump Sum | LS |
| 009E4330 | Project Management, Category III | Lump Sum | LS |
| 100E0100 | Clearing | Lump Sum | LS |
| 110E0210 | Remove Building(s) | Lump Sum | LS |
| 110E0300 | Remove Concrete Curb and/or Gutter | 350 | Ft |
| 110E0600 | Remove Fence | 23,044 | Ft |
| 110E1010 | Remove Asphalt Concrete Pavement | 12,123.0 | SqYd |
| 110E1050 | Remove Asphalt Concrete Approach Pavement | 1,658.0 | SqYd |
| 110E1100 | Remove Concrete Pavement | 113,501.3 | SqYd |
| 110E1130 | Remove Concrete Driveway Pavement | 945.0 | SqYd |
| 110E7040 | Remove Gate for Reset | 1 | Each |
| 110E7802 | Remove Fence for Reset | 273 | Ft |
| 120E0010 | Unclassified Excavation | 735,317 | CuYd |
| 120E0500 | Option Borrow Excavation | 191,820 | CuYd |
| 120E1000 | Muck Excavation | 32,536 | CuYd |
| 120E2000 | Undercutting | 344,536 | CuYd |
| 120E6100 | Water for Embankment | 2,437.6 | MGal |
| 250E0020 | Incidental Work, Grading | Lump Sum | LS |
| 260E6010 | Granular Material | 150.0 | Ton |
| 270E0042 | Salvage Asphalt Mix and Granular Base Material | 54,769.6 | Ton |
| 421E0100 | Pipe Culvert Undercut | 1,393 | CuYd |
| 450E0122 | 18" RCP Class 2, Furnish | 48 | Ft |
| 450E0130 | 18" RCP, Install | 48 | Ft |
| 450E0142 | 24" RCP Class 2, Furnish | 192 | Ft |
| 450E0150 | 24" RCP, Install | 192 | Ft |
| 450E0162 | 30" RCP Class 2, Furnish | 388 | Ft |
| 450E0170 | 30" RCP, Install | 388 | Ft |
| 450E0182 | 36" RCP Class 2, Furnish | 324 | Ft |
| 450E0190 | 36" RCP, Install | 324 | Ft |
| 450E0192 | 42" RCP Class 2, Furnish | 424 | Ft |
| 450E0200 | 42" RCP, Install | 424 | Ft |
| 450E2008 | 18" RCP Flared End, Furnish | 2 | Each |
| 450E2009 | 18" RCP Flared End, Install | 2 | Each |
| 450E2028 | 36" RCP Flared End, Furnish | 6 | Each |
| 450E2029 | 36" RCP Flared End, Install | 6 | Each |

| BID ITEM NUMBER | ITEM | QUANTITY | UNIT |
|-----------------|----------------------------------|----------|------|
| 450E2032 | 42" RCP Flared End, Furnish | 8 | Each |
| 450E2033 | 42" RCP Flared End, Install | 8 | Each |
| 450E2204 | 30" RCP Sloped End, Furnish | 8 | Each |
| 450E2205 | 30" RCP Sloped End, Install | 8 | Each |
| 450E2308 | 24" RCP Safety End, Furnish | 6 | Each |
| 450E2311 | 24" RCP Safety End, Install | 6 | Each |
| 450E3002 | 18" RCP Arch Class 2, Furnish | 40 | Ft |
| 450E3010 | 18" RCP Arch, Install | 40 | Ft |
| 450E3012 | 24" RCP Arch Class 2, Furnish | 240 | Ft |
| 450E3020 | 24" RCP Arch, Install | 240 | Ft |
| 450E3022 | 30" RCP Arch Class 2, Furnish | 478 | Ft |
| 450E3030 | 30" RCP Arch, Install | 478 | Ft |
| 450E3032 | 36" RCP Arch Class 2, Furnish | 1,720 | Ft |
| 450E3040 | 36" RCP Arch, Install | 1,720 | Ft |
| 450E3052 | 48" RCP Arch Class 2, Furnish | 824 | Ft |
| 450E3060 | 48" RCP Arch, Install | 824 | Ft |
| 450E4500 | 18" RCP Arch Flared End, Furnish | 1 | Each |
| 450E4501 | 18" RCP Arch Flared End, Install | 1 | Each |
| 450E4512 | 36" RCP Arch Flared End, Furnish | 30 | Each |
| 450E4513 | 36" RCP Arch Flared End, Install | 30 | Each |
| 450E4520 | 48" RCP Arch Flared End, Furnish | 10 | Each |
| 450E4521 | 48" RCP Arch Flared End, Install | 10 | Each |
| 450E4600 | 24" RCP Arch Sloped End, Furnish | 4 | Each |
| 450E4601 | 24" RCP Arch Sloped End, Install | 4 | Each |
| 450E4604 | 30" RCP Arch Sloped End, Furnish | 8 | Each |
| 450E4605 | 30" RCP Arch Sloped End, Install | 8 | Each |
| 450E4749 | 15" CMP 16 Gauge, Furnish | 132 | Ft |
| 450E4750 | 15" CMP, Install | 132 | Ft |
| 450E4759 | 18" CMP 16 Gauge, Furnish | 856 | Ft |
| 450E4760 | 18" CMP, Install | 856 | Ft |
| 450E4769 | 24" CMP 16 Gauge, Furnish | 712 | Ft |
| 450E4770 | 24" CMP, Install | 712 | Ft |
| 450E4779 | 30" CMP 16 Gauge, Furnish | 1,494 | Ft |
| 450E4780 | 30" CMP, Install | 1,494 | Ft |
| 450E4789 | 36" CMP 16 Gauge, Furnish | 194 | Ft |
| 450E4790 | 36" CMP, Install | 194 | Ft |
| 450E4799 | 42" CMP 16 Gauge, Furnish | 50 | Ft |
| 450E4800 | 42" CMP, Install | 50 | Ft |
| 450E4809 | 48" CMP 16 Gauge, Furnish | 100 | Ft |
| 450E4810 | 48" CMP, Install | 100 | Ft |
| 450E5010 | 18" CMP Elbow, Furnish | 1 | Each |
| 450E5011 | 18" CMP Elbow, Install | 1 | Each |
| 450E5402 | 15" CMP Safety End, Furnish | 4 | Each |

| BID ITEM NUMBER | ITEM | QUANTITY | UNIT |
|-----------------|--|----------|------|
| 450E5403 | 15" CMP Safety End, Install | 4 | Each |
| 450E5406 | 18" CMP Safety End, Furnish | 28 | Each |
| 450E5407 | 18" CMP Safety End, Install | 28 | Each |
| 450E5410 | 24" CMP Safety End, Furnish | 24 | Each |
| 450E5411 | 24" CMP Safety End, Install | 24 | Each |
| 450E5414 | 30" CMP Safety End, Furnish | 48 | Each |
| 450E5415 | 30" CMP Safety End with Bars, Furnish | 6 | Each |
| 450E5417 | 30" CMP Safety End, Install | 54 | Each |
| 450E5420 | 36" CMP Safety End, Furnish | 6 | Each |
| 450E5423 | 36" CMP Safety End, Install | 6 | Each |
| 450E5427 | 42" CMP Safety End with Bars, Furnish | 2 | Each |
| 450E5429 | 42" CMP Safety End, Install | 2 | Each |
| 450E5433 | 48" CMP Safety End with Bars, Furnish | 4 | Each |
| 450E5435 | 48" CMP Safety End, Install | 4 | Each |
| 451E7300 | Repair Drain Tile | 100 | Ft |
| 462E0100 | Class M6 Concrete | 53.2 | CuYd |
| 464E0100 | Controlled Density Fill | 783.2 | CuYd |
| 480E0100 | Reinforcing Steel | 10,741 | Lb |
| 600E0300 | Type III Field Laboratory | 1 | Each |
| 620E0020 | Type 2 Right-of-Way Fence | 13,960 | Ft |
| 620E0060 | Type 6 Right-of-Way Fence | 2,610 | Ft |
| 620E0120 | Type 2s Right-of-Way Fence | 683 | Ft |
| 620E0515 | Type 1A Temporary Fence | 2,430 | Ft |
| 620E0620 | Type 2s Temporary Fence | 675 | Ft |
| 620E1020 | 2 Post Panel | 124 | Each |
| 620E1030 | 3 Post Panel | 20 | Each |
| 620E1110 | Wood Fence Post | 4 | Each |
| 620E2012 | 12' Tubular Gate | 3 | Each |
| 620E2020 | 20' Tubular Gate | 1 | Each |
| 620E2100 | Reset Gate | 1 | Each |
| 620E4100 | Reset Fence | 273 | Ft |
| 650E1080 | Type F68 Concrete Curb and Gutter | 2,337 | Ft |
| 650E1380 | Type FL68 Concrete Curb and Gutter | 76,108 | Ft |
| 650E4680 | Type P8 Concrete Gutter | 136 | Ft |
| 670E1200 | Type B Frame and Grate | 3 | Each |
| 670E5400 | Precast Drop Inlet Collar | 3 | Each |
| 671E6008 | Type A8 Manhole Frame and Lid | 6 | Each |
| 680E0240 | 4" Corrugated Polyethylene Drainage Tubing | 1,000 | Ft |
| 680E0260 | 6" Corrugated Polyethylene Drainage Tubing | 900 | Ft |
| 680E0280 | 8" Corrugated Polyethylene Drainage Tubing | 100 | Ft |
| 900E0010 | Refurbish Single Mailbox | 21 | Each |
| 900E0012 | Refurbish Double Mailbox | 2 | Each |

INDEX OF SHEETS

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| A5 to A8 | Environmental Commitments |

SECTION C – TRAFFIC CONTROL

| BID ITEM NUMBER | ITEM | QUANTITY | UNIT |
|-----------------|--|----------|------|
| 120E0600 | Contractor Furnished Borrow Excavation | 4,617 | CuYd |
| 260E6010 | Granular Material | 4,586.0 | Ton |
| 320E6000 | Temporary Asphalt | 5,890.0 | Ton |
| 332E0010 | Cold Milling Asphalt Concrete | 15,968 | SqYd |
| 634E0010 | Flagging | 500.0 | Hour |
| 634E0020 | Pilot Car | 200.0 | Hour |
| 634E0110 | Traffic Control Signs | 1,970.0 | SqFt |
| 634E0120 | Traffic Control, Miscellaneous | Lump Sum | LS |
| 634E0135 | Traffic Control Supervisor | Lump Sum | LS |
| 634E0275 | Type 3 Barricade | 87 | Each |
| 634E0340 | Temporary Raised Pavement Markers | 22.6 | Mile |
| 634E0380 | Tubular Marker | 4,110 | Each |
| 634E0390 | Replace Tubular Marker | 411 | Each |
| 634E0420 | Type C Advance Warning Arrow Board | 2 | Each |
| 634E0560 | Remove Pavement Marking, 4" or Equivalent | 308,013 | Ft |
| 634E0630 | Temporary Pavement Marking | 82.2 | Mile |
| 634E0700 | Traffic Control Movable Concrete Barrier | 89 | Each |
| 634E0750 | Temporary Concrete Barrier End Protection | 8 | Each |
| 634E0755 | Remove and Reset Temporary Concrete Barrier End Protection | 14 | Each |
| 634E0760 | Temporary Concrete Barrier End Protection Module Set or Repair Kit | 1 | Each |
| 634E1002 | Detour and Restriction Signing | 593.0 | SqFt |
| 634E1215 | Contractor Furnished Portable Changeable Message Sign | 4 | Each |
| 634E1255 | Contractor Furnished Speed Monitoring Radar Trailer | 2 | Each |

SECTION D – EROSION CONTROL

| BID ITEM NUMBER | ITEM | QUANTITY | UNIT |
|-----------------|--|----------|------|
| 110E1690 | Remove Sediment | 9.6 | CuYd |
| 110E1693 | Remove Erosion Control Wattle | 3,320 | Ft |
| 110E1695 | Remove Sediment Filter Bag | 324 | Ft |
| 110E1700 | Remove Silt Fence | 3,540 | Ft |
| 230E0010 | Placing Topsoil | 81,403 | CuYd |
| 730E0100 | Cover Crop Seeding | 33.8 | Bu |
| 730E0202 | Type B Permanent Seed Mixture | 2,432 | Lb |
| 731E0200 | Fertilizing | 67.60 | Ton |
| 732E0100 | Mulching | 270.0 | Ton |
| 734E0102 | Type 2 Erosion Control Blanket | 4,975 | SqYd |
| 734E0154 | 12" Diameter Erosion Control Wattle | 3,320 | Ft |
| 734E0165 | Remove and Reset Erosion Control Wattle | 830 | Ft |
| 734E0180 | Sediment Filter Bag | 324 | Ft |
| 734E0510 | Shaping for Erosion Control Blanket | 2,770 | Ft |
| 734E0602 | Low Flow Silt Fence | 7,485 | Ft |
| 734E0604 | High Flow Silt Fence | 6,676 | Ft |
| 734E0610 | Mucking Silt Fence | 983 | CuYd |
| 734E0620 | Repair Silt Fence | 3,540 | Ft |
| 734E0845 | Sediment Control at Inlet with Frame and Grate | 8 | Each |
| 900E1320 | Construction Entrance | 3 | Each |

SECTION E – STRUCTURE

Structure No. 42-146-140

| BID ITEM NUMBER | ITEM | QUANTITY | UNIT |
|-----------------|-----------------------------------|----------|------|
| 250E0030 | Incidental Work, Structure | Lump Sum | LS |
| 420E0200 | Structure Excavation, Box Culvert | 160 | CuYd |
| 421E0200 | Box Culvert Undercut | 419 | CuYd |
| 460E0120 | Class A45 Concrete, Box Culvert | 346.9 | CuYd |
| 480E0100 | Reinforcing Steel | 58,996 | Lb |
| 700E0210 | Class B Riprap | 271.9 | Ton |
| 831E0110 | Type B Drainage Fabric | 356 | SqYd |

Structure No. 42-077-140 – Alternative A

| BID ITEM NUMBER | ITEM | QUANTITY | UNIT |
|-----------------|-----------------------------------|----------|------|
| 420E0200 | Structure Excavation, Box Culvert | 80 | CuYd |
| 421E0200 | Box Culvert Undercut | 292 | CuYd |
| 460E0120 | Class A45 Concrete, Box Culvert | 197.1 | CuYd |
| 480E0100 | Reinforcing Steel | 31,274 | Lb |
| 700E0210 | Class B Riprap | 39.0 | Ton |
| 831E0110 | Type B Drainage Fabric | 52 | SqYd |

Structure No. 42-077-140 – Alternative B

| BID ITEM NUMBER | ITEM | QUANTITY | UNIT |
|-----------------|---|----------|------|
| 420E0200 | Structure Excavation, Box Culvert | 86 | CuYd |
| 421E0200 | Box Culvert Undercut | 291 | CuYd |
| 560E2092 | 2-9'x5' Precast Concrete Box Culvert, Furnish | 132.0 | Ft |
| 560E2093 | 2-9'x5' Precast Concrete Box Culvert, Install | 132.0 | Ft |
| 560E3092 | 2-9'x5' Precast Concrete Box Culvert End Section, Furnish | 2 | Each |
| 560E3093 | 2-9'x5' Precast Concrete Box Culvert End Section, Install | 2 | Each |
| 700E0210 | Class B Riprap | 39.0 | Ton |
| 831E0110 | Type B Drainage Fabric | 52 | SqYd |

SECTION F – SURFACING

| BID ITEM NUMBER | ITEM | QUANTITY | UNIT |
|-----------------|---|-----------|------|
| 120E6200 | Water for Granular Material | 2,243.8 | MGal |
| 260E1010 | Base Course | 13,361.4 | Ton |
| 260E1030 | Base Course, Salvaged | 22,739.2 | Ton |
| 260E1080 | Base Course, Salvaged, State Furnished | 18,360.0 | Ton |
| 260E2010 | Gravel Cushion | 32,547.3 | Ton |
| 260E2030 | Gravel Cushion, Salvaged | 55,287.2 | Ton |
| 260E2080 | Gravel Cushion, Salvaged, State Furnished | 44,640.0 | Ton |
| 270E0220 | Blend and Stockpile Granular Material | 78,026.4 | Ton |
| 320E0008 | PG 64-34 Asphalt Binder | 893.5 | Ton |
| 320E1050 | Class E Asphalt Concrete | 15,683.4 | Ton |
| 320E3000 | Compaction Sample | 6 | Each |
| 320E5010 | Saw and Seal Shoulder Joint | 83,191 | Ft |
| 330E0010 | MC-70 Asphalt for Prime | 115.8 | Ton |
| 330E0100 | SS-1h or CSS-1h Asphalt for Tack | 27.8 | Ton |
| 330E0210 | SS-1h or CSS-1h Asphalt for Flush Seal | 18.4 | Ton |
| 330E1000 | Blotting Sand for Prime | 10.0 | Ton |
| 330E2000 | Sand for Flush Seal | 276.9 | Ton |
| 332E0010 | Cold Milling Asphalt Concrete | 119,474 | SqYd |
| 380E0050 | 8" Nonreinforced PCC Pavement | 291,280.3 | SqYd |
| 380E2564 | 4" Barrier Type Colored Median PCC Pavement | 59,138.5 | SqYd |
| 380E3040 | 8" PCC Driveway Pavement | 1,839.8 | SqYd |
| 380E6000 | Dowel Bar | 162,859 | Each |
| 380E6110 | Insert Steel Bar in PCC Pavement | 1,057 | Each |
| 380E6450 | Saw Joint in PCC Pavement | 2,371.9 | Ft |

SECTION L – SIGNAL & LIGHTING

| BID ITEM NUMBER | ITEM | QUANTITY | UNIT |
|-----------------|---|----------|------|
| 635E0050 | Breakaway Base Luminaire Pole with Arm, 50' Mounting Height | 35 | Each |
| 635E3700 | Roadway Luminaire, LED with Photoelectric Cell | 35 | Each |
| 635E5020 | 2' Diameter Footing | 280.0 | Ft |
| 635E5301 | Type 1 Electrical Junction Box | 19 | Each |
| 635E5400 | Electrical Service Cabinet | 2 | Each |
| 635E6200 | Miscellaneous, Electrical | Lump Sum | LS |
| 635E8120 | 2" Rigid Conduit, Schedule 40 | 5,425 | Ft |
| 635E8220 | 2" Rigid Conduit, Schedule 80 | 2,855 | Ft |
| 635E9013 | 1/C #3 AWG Copper Wire | 1,350 | Ft |
| 635E9014 | 1/C #4 AWG Copper Wire | 5,130 | Ft |
| 635E9016 | 1/C #6 AWG Copper Wire | 12,540 | Ft |
| 635E9018 | 1/C #8 AWG Copper Wire | 9,495 | Ft |
| 635E9710 | 2/C #10 AWG Copper Pole and Bracket Cable | 2,450 | Ft |

SECTION M – PAVEMENT MARKING

| BID ITEM NUMBER | ITEM | QUANTITY | UNIT |
|-----------------|---|----------|------|
| 633E0010 | Cold Applied Plastic Pavement Marking, 4" | 4,177 | Ft |
| 633E0019 | Cold Applied Plastic Pavement Marking, 4" with Contrast Border | 103,644 | Ft |
| 633E0021 | Cold Applied Plastic Pavement Marking, 8" with Contrast Border | 20,758 | Ft |
| 633E0030 | Cold Applied Plastic Pavement Marking, 24" | 4,656 | Ft |
| 633E0225 | Preformed Thermoplastic Pavement Marking, 24" | 55 | Ft |
| 633E0235 | Preformed Thermoplastic Pavement Marking, Arrow | 81 | Each |
| 633E0245 | Preformed Thermoplastic Pavement Marking, Message | 2 | Word |
| 633E1220 | High Build Waterborne Pavement Marking Paint, 4" White | 1,144 | Ft |
| 633E1222 | High Build Waterborne Pavement Marking Paint, 4" Yellow | 887 | Ft |
| 633E5000 | Grooving for Cold Applied Plastic Pavement Marking, 4" | 4,177 | Ft |
| 633E5004 | Grooving for Cold Applied Plastic Pavement Marking, 4" with Contrast Border | 103,644 | Ft |
| 633E5008 | Grooving for Cold Applied Plastic Pavement Marking, 8" with Contrast Border | 20,758 | Ft |
| 633E5015 | Grooving for Cold Applied Plastic Pavement Marking, 24" | 4,711 | Ft |
| 633E5025 | Grooving for Cold Applied Plastic Pavement Marking, Arrow | 81 | Each |
| 633E5035 | Grooving for Cold Applied Plastic Pavement Marking, Message | 2 | Word |

SECTION S – PERMANENT SIGNING

| BID ITEM NUMBER | ITEM | QUANTITY | UNIT |
|-----------------|---|----------|------|
| 110E0100 | Remove Concrete Footing(s) | Lump Sum | LS |
| 110E0130 | Remove Traffic Sign | 37 | Each |
| 110E7150 | Remove Sign for Reset | 54 | Each |
| 632E0010 | 1.25' Diameter Breakaway Support Concrete Footing | 240.0 | Ft |
| 632E0014 | 1.75' Diameter Breakaway Support Concrete Footing | 140.0 | Ft |
| 632E1225 | W6x12 Steel Post | 206.0 | Ft |
| 632E1320 | 2.0"x2.0" Perforated Tube Post | 403.1 | Ft |
| 632E1340 | 2.5"x2.5" Perforated Tube Post | 613.7 | Ft |
| 632E1500 | 4"x4" Wood Post | 48.0 | Ft |
| 632E2510 | Type 2 Object Marker Back to Back | 42 | Each |
| 632E2520 | Type 2 Object Marker | 144 | Each |
| 632E3203 | Flat Aluminum Sign, Nonremovable Copy High Intensity | 373.5 | SqFt |
| 632E3205 | Flat Aluminum Sign, Nonremovable Copy Super/Very High Intensity | 37.5 | SqFt |
| 632E3500 | Reset Sign | 54 | Each |

SPECIFICATIONS

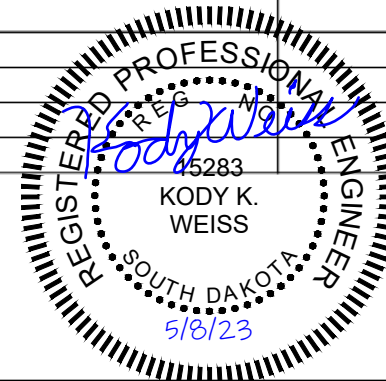
Standard Specifications for Roads and Bridges, 2015 Edition and Required Provisions, Supplemental Specifications, and Special Provisions as included in the Proposal.

SECTION B ESTIMATE OF QUANTITIES

| BID ITEM NUMBER | ITEM | QUANTITY | UNIT |
|-----------------|--|-----------|------|
| 009E0010 | Mobilization | Lump Sum | LS |
| 009E3220 | Reestablish Right-of-Way and Property Corner | 205 | Each |
| 009E3225 | Reestablish Public Land Survey System Corner | 21 | Each |
| 009E3230 | Grade Staking | 37.880 | Mile |
| 009E3250 | Miscellaneous Staking | 8.078 | Mile |
| 009E3280 | Slope Staking | 8.078 | Mile |
| 009E3290 | Structure Staking | 2 | Each |
| 009E3301 | Engineer Directed Surveying/Staking | 40.0 | Hour |
| 009E4300 | Construction Schedule, Category III | Lump Sum | LS |
| 009E4330 | Project Management, Category III | Lump Sum | LS |
| 100E0100 | Clearing | Lump Sum | LS |
| 110E0210 | Remove Building(s) | Lump Sum | LS |
| 110E0300 | Remove Concrete Curb and/or Gutter | 350 | Ft |
| 110E0600 | Remove Fence | 23,044 | Ft |
| 110E1010 | Remove Asphalt Concrete Pavement | 12,123.0 | SqYd |
| 110E1050 | Remove Asphalt Concrete Approach Pavement | 1,658.0 | SqYd |
| 110E1100 | Remove Concrete Pavement | 113,501.3 | SqYd |
| 110E1130 | Remove Concrete Driveway Pavement | 945.0 | SqYd |
| 110E7040 | Remove Gate for Reset | 1 | Each |
| 110E7802 | Remove Fence for Reset | 273 | Ft |
| 120E0010 | Unclassified Excavation | 735,317 | CuYd |
| 120E0500 | Option Borrow Excavation | 191,820 | CuYd |
| 120E1000 | Muck Excavation | 32,536 | CuYd |
| 120E2000 | Undercutting | 344,536 | CuYd |
| 120E6100 | Water for Embankment | 2,437.6 | MGal |
| 250E0020 | Incidental Work, Grading | Lump Sum | LS |
| 260E6010 | Granular Material | 150.0 | Ton |
| 270E0042 | Salvage Asphalt Mix and Granular Base Material | 54,769.6 | Ton |
| 421E0100 | Pipe Culvert Undercut | 1,393 | CuYd |
| 450E0122 | 18" RCP Class 2, Furnish | 48 | Ft |
| 450E0130 | 18" RCP, Install | 48 | Ft |
| 450E0142 | 24" RCP Class 2, Furnish | 192 | Ft |
| 450E0150 | 24" RCP, Install | 192 | Ft |
| 450E0162 | 30" RCP Class 2, Furnish | 388 | Ft |
| 450E0170 | 30" RCP, Install | 388 | Ft |
| 450E0182 | 36" RCP Class 2, Furnish | 324 | Ft |
| 450E0190 | 36" RCP, Install | 324 | Ft |
| 450E0192 | 42" RCP Class 2, Furnish | 424 | Ft |
| 450E0200 | 42" RCP, Install | 424 | Ft |
| 450E2008 | 18" RCP Flared End, Furnish | 2 | Each |
| 450E2009 | 18" RCP Flared End, Install | 2 | Each |
| 450E2028 | 36" RCP Flared End, Furnish | 6 | Each |
| 450E2029 | 36" RCP Flared End, Install | 6 | Each |

SECTION B ESTIMATE OF QUANTITIES, Cont.

| BID ITEM NUMBER | ITEM | QUANTITY | UNIT |
|-----------------|----------------------------------|----------|------|
| 450E2032 | 42" RCP Flared End, Furnish | 8 | Each |
| 450E2033 | 42" RCP Flared End, Install | 8 | Each |
| 450E2204 | 30" RCP Sloped End, Furnish | 8 | Each |
| 450E2205 | 30" RCP Sloped End, Install | 8 | Each |
| 450E2308 | 24" RCP Safety End, Furnish | 6 | Each |
| 450E2311 | 24" RCP Safety End, Install | 6 | Each |
| 450E3002 | 18" RCP Arch Class 2, Furnish | 40 | Ft |
| 450E3010 | 18" RCP Arch, Install | 40 | Ft |
| 450E3012 | 24" RCP Arch Class 2, Furnish | 240 | Ft |
| 450E3020 | 24" RCP Arch, Install | 240 | Ft |
| 450E3022 | 30" RCP Arch Class 2, Furnish | 478 | Ft |
| 450E3030 | 30" RCP Arch, Install | 478 | Ft |
| 450E3032 | 36" RCP Arch Class 2, Furnish | 1,720 | Ft |
| 450E3040 | 36" RCP Arch, Install | 1,720 | Ft |
| 450E3052 | 48" RCP Arch Class 2, Furnish | 824 | Ft |
| 450E3060 | 48" RCP Arch, Install | 824 | Ft |
| 450E4500 | 18" RCP Arch Flared End, Furnish | 1 | Each |
| 450E4501 | 18" RCP Arch Flared End, Install | 1 | Each |
| 450E4512 | 36" RCP Arch Flared End, Furnish | 30 | Each |
| 450E4513 | 36" RCP Arch Flared End, Install | 30 | Each |
| 450E4520 | 48" RCP Arch Flared End, Furnish | 10 | Each |
| 450E4521 | 48" RCP Arch Flared End, Install | 10 | Each |
| 450E4600 | 24" RCP Arch Sloped End, Furnish | 4 | Each |
| 450E4601 | 24" RCP Arch Sloped End, Install | 4 | Each |
| 450E4604 | 30" RCP Arch Sloped End, Furnish | 8 | Each |
| 450E4605 | 30" RCP Arch Sloped End, Install | 8 | Each |
| 450E4749 | 15" CMP 16 Gauge, Furnish | 132 | Ft |
| 450E4750 | 15" CMP, Install | 132 | Ft |
| 450E4759 | 18" CMP 16 Gauge, Furnish | 856 | Ft |
| 450E4760 | 18" CMP, Install | 856 | Ft |
| 450E4769 | 24" CMP 16 Gauge, Furnish | 712 | Ft |
| 450E4770 | 24" CMP, Install | 712 | Ft |
| 450E4779 | 30" CMP 16 Gauge, Furnish | 1,494 | Ft |
| 450E4780 | 30" CMP, Install | 1,494 | Ft |
| 450E4789 | 36" CMP 16 Gauge, Furnish | 194 | Ft |
| 450E4790 | 36" CMP, Install | 194 | Ft |
| 450E4799 | 42" CMP 16 Gauge, Furnish | 50 | Ft |
| 450E4800 | 42" CMP, Install | 50 | Ft |
| 450E4809 | 48" CMP 16 Gauge, Furnish | 100 | Ft |
| 450E4810 | 48" CMP, Install | 100 | Ft |
| 450E5010 | 18" CMP Elbow, Furnish | 1 | Each |
| 450E5011 | 18" CMP Elbow, Install | 1 | Each |
| 450E5402 | 15" CMP Safety End, Furnish | 4 | Each |


SECTION B ESTIMATE OF QUANTITIES, Cont.

| BID ITEM NUMBER | ITEM | QUANTITY | UNIT |
|-----------------|--|----------|------|
| 450E5403 | 15" CMP Safety End, Install | 4 | Each |
| 450E5406 | 18" CMP Safety End, Furnish | 28 | Each |
| 450E5407 | 18" CMP Safety End, Install | 28 | Each |
| 450E5410 | 24" CMP Safety End, Furnish | 24 | Each |
| 450E5411 | 24" CMP Safety End, Install | 24 | Each |
| 450E5414 | 30" CMP Safety End, Furnish | 48 | Each |
| 450E5415 | 30" CMP Safety End with Bars, Furnish | 6 | Each |
| 450E5417 | 30" CMP Safety End, Install | 54 | Each |
| 450E5420 | 36" CMP Safety End, Furnish | 6 | Each |
| 450E5423 | 36" CMP Safety End, Install | 6 | Each |
| 450E5427 | 42" CMP Safety End with Bars, Furnish | 2 | Each |
| 450E5429 | 42" CMP Safety End, Install | 2 | Each |
| 450E5433 | 48" CMP Safety End with Bars, Furnish | 4 | Each |
| 450E5435 | 48" CMP Safety End, Install | 4 | Each |
| 451E7300 | Repair Drain Tile | 100 | Ft |
| 462E0100 | Class M6 Concrete | 53.2 | CuYd |
| 464E0100 | Controlled Density Fill | 783.2 | CuYd |
| 480E0100 | Reinforcing Steel | 10,741 | Lb |
| 600E0300 | Type III Field Laboratory | 1 | Each |
| 620E0020 | Type 2 Right-of-Way Fence | 13,960 | Ft |
| 620E0060 | Type 6 Right-of-Way Fence | 2,610 | Ft |
| 620E0120 | Type 2s Right-of-Way Fence | 683 | Ft |
| 620E0515 | Type 1A Temporary Fence | 2,430 | Ft |
| 620E0620 | Type 2s Temporary Fence | 675 | Ft |
| 620E1020 | 2 Post Panel | 124 | Each |
| 620E1030 | 3 Post Panel | 20 | Each |
| 620E1110 | Wood Fence Post | 4 | Each |
| 620E2012 | 12' Tubular Gate | 3 | Each |
| 620E2020 | 20' Tubular Gate | 1 | Each |
| 620E2100 | Reset Gate | 1 | Each |
| 620E4100 | Reset Fence | 273 | Ft |
| 650E1080 | Type F68 Concrete Curb and Gutter | 2,337 | Ft |
| 650E1380 | Type FL68 Concrete Curb and Gutter | 76,108 | Ft |
| 650E4680 | Type P8 Concrete Gutter | 136 | Ft |
| 670E1200 | Type B Frame and Grate | 3 | Each |
| 670E5400 | Precast Drop Inlet Collar | 3 | Each |
| 671E6008 | Type A8 Manhole Frame and Lid | 6 | Each |
| 680E0240 | 4" Corrugated Polyethylene Drainage Tubing | 1,000 | Ft |
| 680E0260 | 6" Corrugated Polyethylene Drainage Tubing | 900 | Ft |
| 680E0280 | 8" Corrugated Polyethylene Drainage Tubing | 100 | Ft |
| 900E0010 | Refurbish Single Mailbox | 21 | Each |
| 900E0012 | Refurbish Double Mailbox | 2 | Each |

GRADING OPERATIONS

Water for Embankment is estimated at the rate of 10 gallons of water per cubic yard of Embankment minus Waste.

The estimated cubic yards of excavation and/or embankment required to construct outlet ditches, ditch blocks, and approaches are included in the earthwork balance notes on the profile sheets.

Special ditch grades and other sections of the roadway different than the typical section(s) will be constructed to the limits shown on the cross sections. If significant changes to the cross sections are necessary during construction, the Engineer will contact the Designer for the proposed change.

Generally, all inlet and outlet ditches as noted on the plan sheets will be cut with a 10-foot wide bottom with 5:1 backslopes. However, the Engineer may direct the Contractor to adjust the ditch width for proper alignment with the drainage structure.

Temporary fence and/or permanent fence will be placed ahead of the grading operation unless otherwise directed by the Engineer.

TYPE III FIELD LABORATORY

The lab will be equipped with an internet connection such as DSL, cable modem, or other approved service. The internet connection will be provided with a multi-port wireless router. The internet connection will be a minimum speed of 5 Mbps unless limited by job location and approved by the DOT. Prior to installing the wireless router, the Contractor will submit the wireless router's technical data to the Area Office to check for compatibility with the state's computer equipment. The internet connection is intended for state personnel usage only. The Contractor's personnel are prohibited from using the internet connection unless pre-approved by the Project Engineer. These items will be incidental to the contract unit price per each for "Type III Field Laboratory".

UTILITIES

The Contractor will be aware that the existing utilities shown in the plans were surveyed prior to the design of this project and might have been relocated or replaced by a new utility facility prior to construction of this project, might be relocated or replaced by a new utility facility during the construction of this project, or might not require adjustment and may remain in its current location. The Contractor will contact each utility owner and confirm the status of all existing and new utility facilities. The utility contact information is provided elsewhere in the plans or bidding documents.

CLEARING

Before clearing activities begin, the Contractor must contact the Engineer to determine the limits of clearing for the project. If the trees or shrubs that are supposed to remain within the limits of work are damaged or destroyed by the Contractor, the Contractor must replace them with the same size and type at the Contractor's Expense.

All trees and shrubs within the acquired Right-of Way will be removed by the Contractor. All trees and shrubs within the temporary easements will be removed unless otherwise noted in the Plan Sheets. Payment for removal of all trees and shrubs, regardless of size and diameter, will be paid at the lump sum price for "Clearing".

The following table describes the clearing that is anticipated for the project. The Contractor will work with the Engineer to ensure clearing areas are done in conformance to the landowner agreements. Stumps from right-of-way clearing will be buried at locations approved by the Engineer.

TABLE OF CLEARING

| Station | Offset | L/R |
|------------------|------------|--------|
| 75+05 | 86 | R |
| 75+09 | 88 | R |
| 76+66 to 77+95 | 100 | R |
| 78+17 to 80+94 | 74 to 100 | R |
| 115+75 to 117+91 | 100 | R |
| 118+38 to 119+54 | 100 to 120 | R |
| 124+84 | 97 | R |
| 124+85 | 82 | R |
| 124+96 | 83 | R |
| 125+00 | 71 | R |
| 158+71 | 69 | R |
| 210+14 | 33 | R |
| 217+61 to 219+92 | 115 to 134 | L |
| 223+35 | 57 | L |
| 223+80 | 99 | L |
| 235+33 to 234+41 | 45 to 100 | R to L |
| 235+41 to 238+25 | 46 to 100 | R to L |
| 238+15 | 28 | L |
| 238+37 | 4 | L |
| 238+52 | 25 | R |
| 238+83 | 23 | R |
| 239+12 | 35 | R |
| 240+67 | 26 | R |
| 240+88 | 26 | R |
| 240+97 | 25 | R |
| 241+07 | 26 | R |
| 241+26 | 25 | R |
| 242+30 | 26 | R |
| 242+40 | 26 | R |
| 242+53 | 26 | R |
| 242+75 to 244+07 | 22 to 100 | R to L |
| 242+85 | 29 | R |
| 242+95 | 15 | R |
| 242+96 | 5 | R |
| 243+33 | 33 | R |
| 243+34 | 33 | R |
| 243+37 | 32 | R |
| 243+38 | 34 | R |
| 243+47 | 32 | R |
| 243+47 | 32 | R |
| 243+69 | 31 | R |
| 243+70 | 31 | R |
| 244+07 to 244+11 | 22 to 100 | R to L |
| 226+01 to 230+25 | 100 to 120 | R |
| 266+16 to 266+26 | 100 | R |
| 286+82 to 289+52 | 5 to 100 | L to R |
| 289+50 | 21 | R |
| 289+72 | 24 | R |
| 289+72 | 0 | R |
| 289+73 | 42 | R |
| 289+96 | 18 | R |
| 290+13 | 4 | R |
| 290+24 | 16 | R |
| 290+30 | 3 | R |

TABLE OF CLEARING, CONT.

| Station | Offset | L/R |
|------------------|------------|--------|
| 345+89 | 21 | L |
| 347+18 | 2 | L |
| 347+39 | 55 | R |
| 347+41 | 44 | R |
| 347+42 | 66 | R |
| 347+46 | 89 | R |
| 347+47 | 24 | R |
| 347+47 | 80 | R |
| 347+72 to 348+92 | 31 to 100 | L to R |
| 347+94 | 20 | R |
| 348+59 | 65 | R |
| 348+92 to 349+03 | 31 to 100 | R |
| 383+02 to 383+83 | 100 to 120 | L |
| 382+87 to 384+60 | 37 to 135 | L to R |
| 385+29 | 7 | L |
| 385+87 | 6 | L |
| 385+94 | 108 | R |
| 385+98 | 31 | R |
| 386+08 | 13 | R |
| 386+17 | 35 | R |
| 386+17 | 87 | R |
| 386+18 | 70 | R |
| 386+19 | 51 | R |
| 408+92 to 408+97 | 100 to 115 | L |
| 410+94 to 412+90 | 169 to 19 | R to L |
| 412+84 | 26 | L |
| 412+92 | 25 | L |
| 413+20 | 25 | L |
| 413+34 | 9 | L |
| 413+60 | 91 | R |
| 413+62 | 37 | R |
| 413+65 | 7 | R |

| Station | Offset | L/R |
|------------------|----------|-----|
| 413+68 | 81 | R |
| 413+76 | 70 | R |
| 413+88 | 22 | R |
| 413+89 | 38 | R |
| 413+95 | 2 | R |
| 414+03 | 39 | R |
| 414+11 | 20 | R |
| 414+14 | 15 | L |
| 414+15 | 40 | R |
| 414+19 | 3 | R |
| 414+24 | 21 | R |
| 414+28 | 56 | R |
| 414+75 | 12 | L |
| 414+79 | 66 | R |
| 414+80 | 24 | R |
| 414+92 | 12 | L |
| 414+93 | 13 | R |
| 414+97 | 37 | R |
| 415+45 to 416+28 | 169 to 3 | R |
| 451+38 | 76 | L |
| 451+39 | 63 | L |
| 446+37 to 450+78 | 37 to 91 | R |
| 449+08 | 52 | R |
| 450+78 to 451+29 | 87 to 61 | R |
| 450+61 | 61 | R |
| 451+38 | 67 | R |
| 451+78 | 71 | R |
| 452+52 | 58 | R |
| 452+92 | 73 | R |
| 453+22 | 62 | R |
| 453+41 | 75 | R |



REMOVAL OF BUILDING(S)

Included in these plans is the removal and disposal of several buildings. The locations and types of buildings are as follows:

| Station | L/R | Type |
|---------|--------|--|
| 239+00 | 70' L | Residence building, foundation, septic tank |
| 242+00 | 50' L | Outbuilding |
| 290+00 | 75' R | Foundation and septic tank |
| 346+00 | 180' R | Outbuilding |
| 347+75 | 200' R | Outbuildings (2) |
| 348+00 | 90' R | Foundation and septic tank |
| 385+00 | 80' R | Foundation, garage footings/slab and septic tank |
| 412+50 | 140' R | Outbuilding |
| 413+00 | 140' R | Outbuilding |
| 414+00 | 100' R | Foundation and septic tank |

These buildings will be removed in accordance with Section 110 of the Specifications and all local codes. The disconnecting and capping of utility services will be the responsibility of the Contractor.

These buildings have not been inspected for asbestos. The Contractor will be responsible for providing an asbestos inspection and following all local, state, and federal regulations regarding the removal of asbestos, if found. All costs for the inspection will be incidental to the contract lump sum price for "Remove Building(s)". All costs for removal of the asbestos will be handled during construction by CCO.

The above ground residence structures at 290+00R, 348+00R, 385+00R, and 414+00R will be removed by others, prior to construction of this project. Contractor shall remove septic tanks and foundation walls for these residences. Contractor shall remove residence structure, septic tank, and foundation walls at 239+00L. Contractor shall remove outbuildings/garages at 242+00L, 347+75R (2), 346+00R, 385+00R, 412+50R, and 413+00R.

INCIDENTAL WORK, GRADING

| Station | L/C/R | Quantity (Ft) | Remarks |
|---------------|-------|---------------|---|
| 71+80 | C | 56 | 24" RCP Crossing Pipe w/ End Sections |
| 78+07 | R | 42 | 18" RCP Approach Pipe w/ End Sections |
| 85+73 | L | 37 | 24" RCP Approach Pipe w/ End Sections |
| 93+55 | R | 41 | 18" RCP Approach Pipe w/ End Sections |
| 103+40 (RCBC) | C | 80 | 5' x 14' RC Box Culvert w/ End Sections |
| 109+36 | R | 41 | 18" RCP Approach Pipe w/ End Sections |
| 120+45 | C | 67 | 30" RCP Crossing Pipe w/ End Sections |
| 123+56 | R | | Salvage and Stockpile Ex. Driveway Material |
| 123+59 | R | 50 | 18" CMP Approach Pipe w/ End Sections |
| 128+77 | R | 23 | 18" CMP Approach Pipe w/ End Sections |
| 133+94 | C | 51 | 30" RCP Crossing Pipe w/ End Sections |
| 134+00 | C | 51 | 30" RCP Crossing Pipe w/ End Sections |
| 148+05 | C | 63 | 30" RCP Crossing Pipe w/ End Sections |

INCIDENTAL WORK, GRADING, CONT.

| Station | L/C/R | Quantity (Ft) | Remarks |
|---------|-------|---------------|---|
| 156+29 | C | 49 | 18" RCP Crossing Pipe w/ End Sections |
| 158+33 | L | 55 | 15" RCP Approach Pipe w/ End Sections |
| 159+59 | R | 55 | 15" CMP Approach Pipe w/ End Sections |
| 163+76 | R | 57 | 30" RCP Approach Pipe w/ End Sections |
| 163+81 | R | 57 | 30" RCP Approach Pipe w/ End Sections |
| 168+72 | R | 26 | 15" RCP Approach Pipe w/ End Sections |
| 174+17 | R | 62 | 30" RCP Approach Pipe w/ End Sections |
| 189+07 | R | 33 | 24" RCP Approach Pipe w/ End Sections |
| 191+21 | R | 46 | 18" CMP Approach Pipe w/ End Sections |
| 199+26 | C | 53 | 28" RCP Crossing Pipe w/ End Sections |
| 199+32 | C | 53 | 28" RCP Crossing Pipe w/ End Sections |
| 199+38 | C | 53 | 28" RCP Crossing Pipe w/ End Sections |
| 207+12 | R | 22 | 18" RCP Approach Pipe w/ End Sections |
| 210+78 | R | 36 | 24" RCP Approach Pipe w/ End Sections |
| 212+52 | R | 40 | 15" CMP Approach Pipe w/ End Sections |
| 223+28 | R | 57 | 24" RCP Approach Pipe w/ End Sections |
| 226+26 | R | 105 | 30" RCP Approach Pipe w/ End Sections |
| 226+32 | R | 101 | 30" RCP Approach Pipe w/ End Sections |
| 235+65 | R | 48 | 28" RCP Approach Pipe w/ End Sections |
| 235+65 | R | 48 | 24" RCP Approach Pipe w/ End Sections |
| 237+72 | R | 48 | 24" CMP Approach Pipe w/ End Sections |
| 238+99 | L | 86 | Plug Existing Well |
| 239+24 | R | 42 | 18" CMP Approach Pipe w/ End Sections |
| 240+02 | R | 51 | 24" RCP Approach Pipe w/ End Sections |
| 240+02 | R | 51 | 24" RCP Approach Pipe w/ End Sections |
| 240+05 | R | 50 | 18" RCP Approach Pipe w/ End Sections |
| 243+99 | L | 143 | Salvage Existing Fencing Guardrail |
| 242+96 | R | 50 | 24" RCP Approach Pipe w/ End Sections |
| 242+99 | R | 50 | 24" RCP Approach Pipe w/ End Sections |
| 252+01 | R | 49 | 18" RCP Approach Pipe w/ End Sections |
| 278+37 | R | 53 | 18" RCP Approach Pipe w/ End Sections |
| 278+42 | R | 41 | 18" RCP Approach Pipe w/ End Sections |
| 285+90 | L | 87 | 30" RCP Approach Pipe w/ End Sections |
| 285+95 | L | 87 | 30" RCP Approach Pipe w/ End Sections |
| 286+00 | L | 86 | 30" RCP Approach Pipe w/ End Sections |
| 286+05 | L | 85 | 30" RCP Approach Pipe w/ End Sections |
| 295+82 | L | 31 | 15" CMP Approach Pipe w/ End Sections |
| 293+77 | L | 31 | 18" RCP Approach Pipe w/ End Sections |
| 297+02 | L | 50 | 18" RCP Approach Pipe w/ End Sections |
| 303+31 | L | 61 | Salvage 18" CMP Approach Pipe w/ End Sections |
| 304+04 | C | 97 | 15" RCP Crossing Pipe w/ End Sections |
| 311+37 | C | 44 | 24" RCP Crossing Pipe w/ End Sections |
| 321+58 | C | 64 | 30" RCP Crossing Pipe w/ End Sections |
| 321+64 | C | 65 | 36" RCP Crossing Pipe w/ End Sections |
| 323+83 | L | 46 | 15" RCP Approach Pipe w/ End Sections |
| 323+72 | L | 38 | 15" RCP Approach Pipe w/ End Sections |
| 342+08 | L | 32 | 18" RCP Approach Pipe w/ End Sections |
| 342+08 | L | 32 | 18" RCP Approach Pipe w/ End Sections |
| 346+73 | L | 151 | 18" RCP Approach Pipe w/ End Sections |
| 346+73 | L | 151 | 18" RCP Approach Pipe w/ End Sections |
| 355+90 | C | 53 | 30" RCP Crossing Pipe w/ End Sections |
| 355+97 | C | 53 | 30" RCP Crossing Pipe w/ End Sections |
| 382+35 | L | 63 | 24" RCP Approach Pipe w/ End Sections |
| 382+41 | L | 63 | 24" RCP Approach Pipe w/ End Sections |
| 385+65 | L | 49 | 18" CMP Approach Pipe w/ End Sections |
| 389+76 | L | 57 | 18" CMP Approach Pipe w/ End Sections |
| 398+27 | L | 42 | 18" RCP Approach Pipe w/ End Sections |

INCIDENTAL WORK, GRADING, CONT.

| Station | L/C/R | Quantity (Ft) | Remarks |
|---------|-------|---------------|---|
| 402+01 | L | 69 | 30" CMP Approach Pipe w/ End Sections |
| 413+76 | R | 76 | Plug Existing Well |
| 420+82 | C | 54 | 24" RCP Crossing Pipe w/ End Sections |
| 433+52 | C | 82 | 30" RCP Crossing Pipe w/ End Sections |
| 444+73 | R | 67 | 24" RCP Approach Pipe w/ End Sections |
| 445+31 | C | 80 | 24" RCP Crossing Pipe w/ End Sections |
| 448+13 | L | 56 | 18" CMP Approach Pipe w/ End Sections |
| 452+34 | L | 74 | 18" CMP Approach Pipe w/ End Sections |
| 461+61 | L | 86 | 24" CMP Approach Pipe w/ End Sections |
| 461+61 | R | 75 | 24" CMP Approach Pipe w/ End Sections |
| 467+56 | L | | Condate with Landowner on Culvert Placement |
| 467+48 | L | 35 | 24" CMP Approach Pipe w/ End Sections |
| 470+22 | C | 88 | 18" RCP Crossing Pipe w/ End Sections |
| 470+40 | C | 88 | 18" RCP Crossing Pipe w/ End Sections |

REMOVAL OF EXISTING CONCRETE PAVEMENT

Existing asphalt concrete and/or existing asphalt concrete patch work that was placed above the existing concrete pavement is included in the quantity for "Remove Concrete Pavement". The Contractor will dispose of the concrete pavement and asphalt concrete at a site approved by the Engineer.

TABLE OF CONCRETE PAVEMENT REMOVAL

| Station | to | Station | Quantity (SqYd) |
|----------|----|----------|-----------------|
| 48+70.6 | | 70+90.0 | 6,453.5 |
| 70+90.0 | | 119+91.5 | 13,070.7 |
| 119+91.5 | | 425+77.7 | 67,969.3 |
| 425+77.7 | | 473+32.2 | 26,007.8 |
| Total: | | | 113,501.3 |

TABLE OF ASPHALT CONCRETE APPROACH PAVEMENT REMOVAL

| Station | to | Station | L/R | Quantity (SqYd) |
|---------|----|---------|-----|-----------------|
| 125+83 | | 126+23 | R | 87 |
| 158+02 | | 158+53 | L | 230 |
| 346+10 | | 346+33 | L | 16 |
| 435+48 | | 437+37 | L | 1,326 |
| Total: | | | | 1,658 |

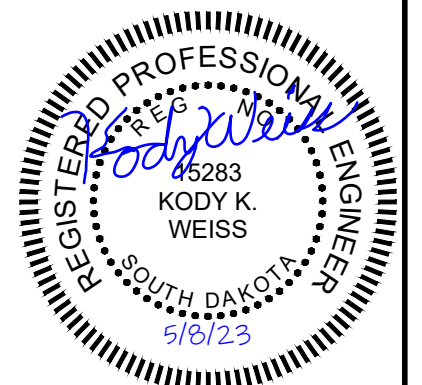


TABLE OF ASPHALT CONCRETE PAVEMENT REMOVAL

| Station | to | Station | L/R | Quantity (SqYd) |
|---------|----|---------|-----|-----------------|
| 66+46 | | 67+21 | L | 186 |
| 66+47 | | 67+27 | R | 182 |
| 119+47 | | 120+41 | L | 316 |
| 119+51 | | 120+49 | R | 318 |
| 172+41 | | 173+24 | L | 112 |
| 172+46 | | 173+12 | R | 86 |
| 223+83 | | 227+00 | L | 2,126 |
| 225+25 | | 225+89 | R | 105 |
| 278+21 | | 278+92 | L | 56 |
| 278+15 | | 278+73 | R | 88 |
| 331+01 | | 331+74 | L | 96 |
| 330+70 | | 331+87 | R | 570 |
| 382+30 | | 382+92 | L | 83 |
| 382+40 | | 382+97 | R | 75 |
| 425+71 | | 435+31 | L | 1,023 |
| 425+70 | | 435+31 | R | 662 |
| 425+71 | | 452+05 | L | 1,589 |
| 435+31 | | 449+33 | R | 1,166 |
| 452+65 | | 641+60 | L | 714 |
| 452+83 | | 461+61 | R | 699 |
| 461+60 | | 473+32 | L | 932 |
| 461+61 | | 473+32 | R | 939 |
| Total: | | | | 12,123 |

TABLE OF CONCRETE CURB AND/OR GUTTER REMOVAL

| Station | to | Station | L/R | Quantity (Ft) |
|---------|----|---------|-----|---------------|
| 449+33 | | 452+83 | R | 350 |
| Total: | | | | 350 |

TABLE OF CONCRETE DRIVEWAY PAVEMENT REMOVAL

| Station | to | Station | L/R | Quantity (SqYd) |
|---------|----|---------|-----|-----------------|
| 220+22 | | 222+15 | L | 303 |
| 222+14 | | 222+30 | L | 113 |
| 346+17 | | 346+26 | L | 13 |
| 347+05 | | 347+48 | L | 68 |
| 398+07 | | 398+45 | L | 78 |
| 404+08 | | 404+35 | L | 31 |
| 451+72 | | 452+58 | L | 339 |
| Total: | | | | 945 |

PLUG WELL

The wells at Sta. 238+99 86' L and Sta.413+76 70' R will be plugged by a South Dakota Licensed Water Well Driller and will be in conformance with Administrative Rule of South Dakota (ARSD) 74:02:04, Sections 67-71. The Contractor and the South Dakota Licensed Water Well Driller will inspect the sites prior to the bid letting in order to determine the material and labor necessary to complete the work. All costs involved in plugging the wells will be incidental to the contract lump sum price for "Incidental Work, Grading"

DRAIN TILE

There are several locations along the project where drain tile may be encountered during construction. Landowners who have indicated the presence of drain tile on their property that is adjacent to US HWY 18 as shown on the plans sheets. This, however, does not eliminate the chance of encountering other drain tile on the project that was not identified.

The Contractor will repair any damaged drain tile to the extent that the functionality of the drainage system is retained after the project. Where replacement is necessary, the existing drain tile will be replaced with the appropriate diameter of corrugated polyethylene drainage tubing. The diameter of replacement drain tile must be no greater than the diameter of existing drain tile. The corrugated polyethylene drainage tubing will be in conformance with Section 990 of the Specifications and must be installed in accordance with the manufacturer's specifications.

All costs associated with the repair and or replacement of the drainage tile will be incidental to the contract unit price per foot for the corresponding corrugated polyethylene drainage tubing contract item.

Where existing drain tile is located in either the existing ROW or the new ROW limits, and runs parallel to the highway, drain tile must be relocated or replaced as necessary outside of the existing highway ROW and parallel to the roadway, and discharge of drain tile must match the Original Contour and elevation of the property. If an existing drain tile system crosses SDDOT right of way, the crossing will be replaced, if replacement is deemed necessary by the Engineer. Installation of drain tile highway crossing must be perpendicular to the roadway and must be from edge of right of way to edge of right of way.

The following is a table stating all known drain tile locations, and estimated existing drain tile material, tubing size, and quantity that may be affected by the project.

TABLE OF DRAIN TILE

| Station | to | Station | Parcel | L/R | Existing Drain Material | Dia. (Inch) | Quantity (Ft) |
|-----------|----|-----------|--------|-----|-------------------------|-------------|---------------|
| 67+17.49 | | 85+85.62 | A1 | L | | 4 | 100 |
| 93+35.34 | | 119+53.98 | 4 | L | | 6 | 100 |
| 133+08.48 | | 146+29.85 | 7 | L | | 4 | 100 |
| 120+37.48 | | 124+50.30 | A3 | R | | 6 | 100 |
| 124+50.30 | | 125+13.44 | 8 | R | | 4 | 100 |
| 125+13.44 | | 128+67.27 | 9 | R | | 6 | 100 |
| 159+58.88 | | 172+41.20 | 13 | L | | 4 | 100 |
| 188+82.77 | | 192+38.98 | A6 | R | | 6 | 100 |

TABLE OF DRAIN TILE, CONT.

| Station | to | Station | Parcel | L/R | Existing Drain Material | Dia. (Inch) | Quantity (Ft) |
|-----------|----|-----------|--------|-----|-------------------------|-------------|---------------|
| 192+38.98 | | 199+17.41 | 17 | R | | 4 | 100 |
| 278+62.86 | | 288+70.72 | 27 | L | | 6 | 100 |
| 278+78.39 | | 286+18.61 | 29 | R | | 4 | 100 |
| 286+18.61 | | 293+44.92 | 30 | R | | 6 | 100 |
| 293+86.70 | | 299+25.14 | A11 | L | | 4 | 100 |
| 304+88.10 | | 324+26.53 | 32 | R | | 6 | 100 |
| 324+26.53 | | 330+96.50 | 33 | R | | 4 | 100 |
| 331+70.20 | | 356+25.50 | 35 | R | | 6 | 100 |
| 344+15.05 | | 352+95.98 | 37 | R | | 4 | 100 |
| 356+24.79 | | 382+29.62 | 38 | L | | 6 | 100 |
| 366+11.76 | | 370+34.37 | A14 | L | | 4 | 100 |
| 399+06.26 | | 402+34.88 | A18 | L | | 6 | 100 |
| 405+63.49 | | 409+30.58 | A20 | L | | 8 | 100 |

CORRUGATED METAL PIPE

Corrugated metal pipes will have 2 2/3-inch x 1/2-inch corrugations for 42-inch and smaller round pipe and 48-inch and smaller arch pipe unless otherwise stated in the plans. Corrugated metal pipes will have 3-inch x 1-inch or 5-inch x 1-inch corrugations for 48-inch and larger round pipe and 54-inch and larger arch pipe unless otherwise stated in the plans.

The gauge of the corrugated metal elbows, tees, crosses, wyes, and ends will match the thickest gauge of corrugated metal pipe it is connected to.

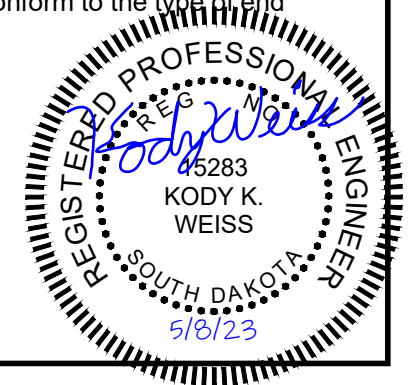
PIPE FOR APPROACHES AND INTERSECTING ROADS

Class 3 reinforced concrete pipe, high density polyethylene pipe, polypropylene pipe (will be in conformance with AASHTO M330), or steel reinforced polyethylene pipe may be substituted for corrugated metal pipe at approaches and intersecting roads at no additional cost to the State. If corrugated metal pipes are provided, the pipes will be as specified in the CORRUGATED METAL PIPE note.

Pipe material substitution will not be allowed at the following locations:

- Sta. 278+30 – 74' L
- Sta. 278+30 – 75' R
- Sta. 331+36 – 84' L
- Sta. 435+31 – 84' L

If high density polyethylene pipe, polypropylene pipe (will be in conformance with AASHTO M330), or steel reinforced polyethylene pipe are provided, then the end sections will be metal, be compatible, and conform to the type of end section as shown in the plans.



CONCRETE PIPE CONNECTIONS

When it is not possible to use a normal pipe joint (male-female ends), connections to existing pipe will be made by placing a 2' wide by 6" thick M6 concrete collar around the outside of the connection. The concrete collar will be reinforced with 6x6 W2.9 x W2.9 wire mesh.

All costs for constructing the concrete collars including materials and labor will be incidental to the contract unit price per foot for the corresponding pipe contract item.

PIPE COVER

The earthen subgrade cover for some pipe installations is less than one foot. The Contractor will take the necessary precautions to ensure the structural properties of the pipes are not damaged after installation and prior to the placement of final surfacing. Any additional costs for preventing damage to these pipes will be incidental to the contract unit price per foot for the corresponding pipe installation contract item.

CONTROLLED DENSITY FILL FOR PIPE

Controlled density fill will be in conformance with Section 464 of the Specifications.

The controlled density fill will be placed between the pipes from the base of pipe elevation to the haunch of the pipes and extend to the end of the end section.

TABLE OF CONTROLLED DENSITY FILL FOR PIPE

| Station | Controlled Density Fill (CuYd) |
|---------|--------------------------------|
| 133+97 | 27.6 |
| 147+97 | 30.6 |
| 163+75 | 44.4 |
| 199+22* | 156.0 |
| 226+50* | 111.2 |
| 243+00 | 34.9 |
| 286+22 | 188.6 |
| 321+46 | 64.8 |
| 357+50 | 34.1 |
| 382+25 | 14.0 |
| 470+23 | 77.0 |
| Total: | 783.2 |

*Includes quantity for Junction Boxes

STORM SEWER

Reinforced concrete pipe may be bell and spigot. The pipe sections will be adjoined such that the ends are fully entered and the inner surfaces are reasonably flush and even.

Lift holes in the reinforced concrete pipe will be plugged with grout.

Watertight joints are required for reinforced concrete pipe, drop inlets, manholes, and junction boxes where storm sewers run parallel to and within 10 feet horizontally from existing or proposed water mains.

STORM SEWER, CONT.

Watertight joints are required where reinforced concrete pipes, drop inlets, manholes, or junction boxes cross water mains and are separated a distance of 18 inches or less, above or below, the water main.

If watertight joints are required then the watertight joints will extend for a distance of 10 feet beyond the water main. This measurement will be from the sealed concrete joint to the outer most surface of the water main.

Watertight joint seals will conform to the following requirements:

1. **Reinforced Concrete Pipe (Circular):** Gasketed pipe will conform to the requirements of ASTM C443 and the gasket will be in conformance with Section 990 of the Specifications. Non-gasketed concrete pipe will be sealed with a mastic joint seal conforming to the requirements of ASTM C990 and encased with a minimum 2-foot wide by 6-inch thick M6 concrete collar reinforced with 6x6 W2.9 x W2.9 wire mesh.
2. **Reinforced Concrete Pipe (Arch):** Gasketed pipe will conform to the requirements of ASTM C443 and the gasket will be in conformance with Section 990 of the Specifications. Non-gasketed concrete pipe joints will be sealed with a hydrophilic flexible water stop seal and wrapped with a 1-foot wide strip of fabric above the cradle. The fabric will conform to the requirements of Section 831 of the Specifications for Type A Drainage Fabric. The hydrophilic flexible water stop will be from the list below.
3. **Drop Inlets, Manholes, and Junction Boxes:** Joints will be sealed with one of the following methods:
 - a. A flexible strip seal placed in the joints conforming to the requirements of ASTM C990 and the perimeter encased with a minimum 2-foot wide by 6-inch thick M6 concrete collar reinforced with 6x6 W2.9 x W2.9 wire mesh.
 - b. A hydrophilic flexible water stop seal placed in the joints and a 1-foot wide strip of fabric wrapped around the perimeter of the pipe. The fabric will conform to the requirements of Section 831 of the Specifications for Type A Drainage Fabric. The hydrophilic flexible water stop will be from the list below.
 - c. A self-adhesive external joint seal wrap. The seal wrap will be from the list below.

Approved List of Self-adhesive Joint Wrap

| Product | Manufacturer |
|-------------------|---|
| Mar Mac Seal Wrap | Mar Mac Construction Products McBee, SC 843-335-5909 www.marmac.com |
| ConWrap CS-212 | Concrete Sealants, Inc. Tipp City, OH 800-332-7325 http://www.conseal.com |

STORM SEWER, CONT.

Approved List of Hydrophilic Flexible Water Stop Seal:

| Product | Manufacturer |
|----------------|---|
| Waterstop RX | Cetco Hoffman Estates, IL 800-527-9948 www.cetco.com |
| Conseal CS-231 | Concrete Sealants, Inc. Tipp City, OH 800-332-7325 http://www.conseal.com |

Gaskets and seals (mastic, waterstop, and seal wraps) will be installed in accordance with the Manufacturer's recommendations.

The cost for furnishing and installing all gaskets, mastic joint seal, water stop seal, seal wrap, concrete collars, and for plugging the lift holes will be incidental to the contract unit price per foot for the corresponding pipe contract item.

DROP INLETS

Where drop inlets are constructed within areas of curb and gutter, the Contractor will construct weep holes of at least 3 inches in diameter in the drop inlet walls. The weep holes will be constructed at the same elevation as the adjacent top of the earthen subgrade and will be maintained clean and open at all times until the permanent surfacing is placed. The drop inlets will be covered throughout construction operations as necessary with an Engineer approved cover to provide safe travel for motorists and to prevent materials from entering the storm sewer system. After the permanent surfacing has been placed, the Contractor will seal the weep holes with grout and remove all debris from the drop inlet. All costs involved with the coverings, weep holes, and removing debris from the drop inlets will be incidental to the contract unit prices for the components of the drop inlets.

The plan shown quantities of the drop inlet components such as Class M6 Concrete, Reinforcing Steel, and Type B Frame and Grate Assembly will be the basis of payment for these items.

If additions or reductions to the number of drop inlets are ordered by the Engineer, payment for the components required to construct the drop inlets will be made at the contract unit prices for the components of the drop inlets.



TABLE OF DROP INLETS AND QUANTITIES

| Station | L/R | Drop Inlet Size L'xW'xH' | Drop Inlet Type | Class M6 Concrete (CuYd) | Reinforcing Steel (Lb) | Precast Drop Inlet Collar (Each) |
|-----------|-----|-----------------------------|-----------------|-----------------------------|---------------------------|-------------------------------------|
| 156+63.65 | L | 2.0'x3.0'x5.29' | B | 1.1 | 194 | 1 |
| 322+18.38 | L | 2.0'x3.0'x4.55' | B | 0.9 | 173 | 1 |
| 452+72.00 | R | 2.0'x3.0'x3.36' | B | 0.6 | 138 | 1 |
| Total | | | | 2.6 | 505 | 3 |

Total Type B Frame and Grate Assembly 3

TABLE OF JUNCTION BOXES AND QUANTITIES

| Station | L/R | Size L'xW'xH' | Frame and Lid (Type) | Class M6 Concrete (CuYd) | Reinforcing Steel (Lb) | Estimated Adjustment * (Ft) |
|-----------|-----|------------------|-------------------------|-----------------------------|---------------------------|--------------------------------|
| 148+00.00 | L | 9'3"x4'0"x4'0" | A8 | 6.3 | 1,283 | 0.6 |
| 199+22.00 | R | 7'3"x4'0"x5'0" | A8 | 17.3 | 3,787 | 0.5 |
| | | 14'6"x4'0"x5'0" | A8 | | | 0.5 |
| 226+50.00 | L | 12'0"x4'0"x3'6" | A8 | 17.9 | 3,467 | 0.9 |
| | | 12'0"x4'0"x3'6" | A8 | | | 0.9 |
| 357+50.00 | L | 11'3"x4'0"x4'6" | A8 | 8.2 | 1,699 | 0.7 |
| Total | | | | 49.7 | 10,236 | |

Total Type A8 Manhole Frame and Lid 6

* Estimated spacing between the top of the Junction Box and bottom of Manhole Frame. This vertical spacing shall be filled with adjusting rings. Adjusting rings shall be incidental to the contract unit price for "Type A8 Manhole Frame and Lid".

MAILBOXES

The Contractor will reset the existing mailboxes on new posts with the necessary support hardware for single or double mailbox assemblies. The local Postmaster will determine the recommended mounting height and final location of the mailboxes throughout the project. The Contractor will coordinate with the Engineer on the proper postal representative to contact.

If large mailboxes are located at double mailbox installations, a single post may need to be used for the large mailbox.

All costs for removing existing mailboxes, providing temporary mailboxes, and resetting mailboxes with new posts and necessary support hardware will be incidental to the contract unit price per each for "Refurbish Single Mailbox" or "Refurbish Double Mailbox".

TABLE OF REFURBISH MAILBOX

| Station | Existing L/R | Proposed L/R | Single (Each) | Double (Each) |
|---------|--------------|--------------|---------------|---------------|
| 78+53 | L | R | 1 | |
| 119+71 | L | R | 1 | |
| 158+10 | L | L | 1 | |
| 192+33 | L | R | 1 | |
| 210+35 | L | R | 1 | |
| 236+11 | R | R | 1 | |
| 268+09 | R | R | 1 | |
| 291+32 | L | R | 1 | |
| 296+52 | L | L | 1 | |
| 300+82 | L | L | 1 | |
| 303+66 | L | L | 1 | |
| 323+65 | R | L | 1 | |
| 347+72 | L | L | | 1 |
| 384+13 | L | L | 1 | |
| 386+96 | L | R | 1 | |
| 389+28 | L | L | 1 | |
| 397+80 | L | L | 1 | |
| 403+65 | L | L | 1 | |
| 405+81 | L | L | 1 | |
| 412+96 | L | R | 1 | |
| 451+92 | L | L | 1 | |
| 452+31 | L | R | 1 | |
| 466+95 | L | L | | 1 |
| Totals: | | | 21 | 2 |

TEMPORARY FENCE

The Contractor will verify the location of the temporary fence with the landowner prior to installation of the fence.

BRACE PANELS FOR ROW FENCE

The E-Z Brace or an approved equal may be utilized as an alternate horizontal brace in the brace panels if approved by the Engineer. The E-Z Brace will be attached to each wood post utilizing two 5/16" x 3" lag screws. Holes of appropriate diameter, based on wood post condition, will be drilled before placement of lag screws. The following are contacts regarding the E-Z Brace:

Charlie Mack
Macksteel E-Z Braces
415 20th Ave. SE.
Watertown, SD 57201
605-882-2177

PUBLIC LANDS SURVEY SYSTEM, RIGHT OF WAY, AND PROPERTY CORNERS

The Contractor will have a Land Surveyor, licensed in the State of South Dakota, to set, reestablish or verify public land survey system (PLSS) corners, right of way (ROW) corners, and property corners as directed by the appropriate SDDOT Region Land Surveyor. It is estimated that 21 PLSS corners and 205 ROW and property corners will be set, reestablished, or verified for this project. The Contractor's Land Surveyor, under the direction of the Region Land Surveyor, will set, reestablish, or verify all corner monuments after surfacing and fencing operations are completed in accordance with the PUBLIC LANDS SURVEY SYSTEM CORNERS section and the RIGHT OF WAY AND PROPERTY CORNERS section in Chapter 8 of the SDDOT Survey Manual.

< <https://dot.sd.gov/doing-business/engineering/design-services/surveyors> >

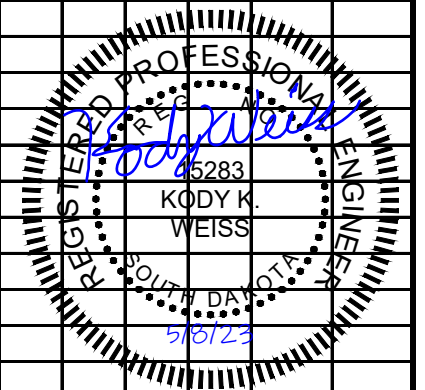
All costs associated with furnishing and installing PLSS caps, rebar, and all other materials associated with setting, reestablishing, or verifying PLSS, ROW corners, and property corners in accordance with the SDDOT Survey Manual will be incidental to the contract unit price per each for "Reestablish Public Land Survey System Corner" and/or "Reestablish Right-of-Way and Property Corner".



PAVEMENT, CURB AND GUTTER, AND SIDEWALK QUANTITIES

Plotting Date: 12/01/2022 Rev 5/08/2023 KKW

| Station to Station | Concrete Curb and Gutter | | Concrete Gutter | | | | | | | | | | | | | | | | | | | | | |
|--------------------------------|--------------------------|----------|-----------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| | Type F | | Type P | | | | | | | | | | | | | | | | | | | | | |
| | L68 Ft | 68 Ft | 8 Ft | | | | | | | | | | | | | | | | | | | | | |
| 67+37, 5' R to 92+62, 14' L | 2,532 | | | | | | | | | | | | | | | | | | | | | | | |
| 67+37, 9' R to 92+62, 10' L | 2,532 | | | | | | | | | | | | | | | | | | | | | | | |
| 93+61, 10' R to 119+23, 14' L | 2,564 | | | | | | | | | | | | | | | | | | | | | | | |
| 93+61, 14' R to 119+23, 10' L | 2,564 | | | | | | | | | | | | | | | | | | | | | | | |
| 120+53, 10' R to 146+05, 14' L | 2,554 | | | | | | | | | | | | | | | | | | | | | | | |
| 120+53, 14' R to 146+05, 10' L | 2,554 | | | | | | | | | | | | | | | | | | | | | | | |
| 147+02, 10' R to 172+22, 14' L | 2,521 | | | | | | | | | | | | | | | | | | | | | | | |
| 147+02, 14' R to 172+22, 10' L | 2,521 | | | | | | | | | | | | | | | | | | | | | | | |
| 156+55, 47' L to 158+19, 47' L | | 163 | | | | | | | | | | | | | | | | | | | | | | |
| 158+19, 47' L to 158+43, 47' L | | | 24 | | | | | | | | | | | | | | | | | | | | | |
| 158+43, 47' L to 159+57, 47' L | | 114 | | | | | | | | | | | | | | | | | | | | | | |
| 173+24, 10' R to 198+91, 14' L | 2,569 | | | | | | | | | | | | | | | | | | | | | | | |
| 173+24, 14' R to 198+91, 10' L | 2,569 | | | | | | | | | | | | | | | | | | | | | | | |
| 199+41, 10' R to 225+02, 14' L | 2,562 | | | | | | | | | | | | | | | | | | | | | | | |
| 199+41, 14' R to 225+02, 10' L | 2,562 | | | | | | | | | | | | | | | | | | | | | | | |
| 226+06, 10' R to 251+63, 14' L | 2,559 | | | | | | | | | | | | | | | | | | | | | | | |
| 226+06, 14' R to 251+63, 10' L | 2,559 | | | | | | | | | | | | | | | | | | | | | | | |
| 252+50, 10' R to 277+86, 14' L | 2,539 | | | | | | | | | | | | | | | | | | | | | | | |
| 252+50, 14' R to 277+86, 10' L | 2,539 | | | | | | | | | | | | | | | | | | | | | | | |
| 278+91, 10' R to 307+36, 14' L | 2,844 | | | | | | | | | | | | | | | | | | | | | | | |
| 278+91, 14' R to 307+36, 10' L | 2,844 | | | | | | | | | | | | | | | | | | | | | | | |
| 308+31, 10' R to 330+81, 14' L | 2,252 | | | | | | | | | | | | | | | | | | | | | | | |
| 308+31, 14' R to 330+81, 10' L | 2,252 | | | | | | | | | | | | | | | | | | | | | | | |
| 322+10, 52' L to 323+76, 52' L | | 167 | | | | | | | | | | | | | | | | | | | | | | |
| 323+76, 52' L to 324+00, 52' L | | | 24 | | | | | | | | | | | | | | | | | | | | | |
| 324+00, 52' L to 326+03, 52' L | | 203 | | | | | | | | | | | | | | | | | | | | | | |
| 332+08, 10' R to 356+00, 14' L | 2,394 | | | | | | | | | | | | | | | | | | | | | | | |
| 332+08, 14' R to 356+00, 10' L | 2,394 | | | | | | | | | | | | | | | | | | | | | | | |
| 356+50, 10' R to 382+02, 14' L | 2,553 | | | | | | | | | | | | | | | | | | | | | | | |
| 356+50, 14' R to 382+02, 10' L | 2,553 | | | | | | | | | | | | | | | | | | | | | | | |
| 383+24, 10' R to 411+96, 14' L | 2,873 | | | | | | | | | | | | | | | | | | | | | | | |
| 383+24, 14' R to 411+96, 10' L | 2,873 | | | | | | | | | | | | | | | | | | | | | | | |
| 412+73, 10' R to 434+84, 14' L | 2,212 | | | | | | | | | | | | | | | | | | | | | | | |
| 412+73, 14' R to 434+84, 10' L | 2,212 | | | | | | | | | | | | | | | | | | | | | | | |
| 435+89, 10' R to 461+13, 4' L | 2,526 | | | | | | | | | | | | | | | | | | | | | | | |
| 435+89, 14' R to 461+13, 3' L | 2,526 | | | | | | | | | | | | | | | | | | | | | | | |
| 449+32, 47' R to 451+97, 47' R | | 264 | | | | | | | | | | | | | | | | | | | | | | |
| 451+97, 47' R to 452+21, 47' R | | | 24 | | | | | | | | | | | | | | | | | | | | | |
| 452+21, 47' R to 452+83, 47' R | | 62 | | | | | | | | | | | | | | | | | | | | | | |
| 466+10, 35' L to 467+11, 35' L | | 102 | | | | | | | | | | | | | | | | | | | | | | |
| 467+11, 35' L to 467+51, 35' L | | | 40 | | | | | | | | | | | | | | | | | | | | | |
| 467+51, 35' L to 473+33, 27' L | | 582 | | | | | | | | | | | | | | | | | | | | | | |
| 466+30, 47' R to 467+83, 47' R | | 154 | | | | | | | | | | | | | | | | | | | | | | |
| Subtotal: | 76,108 | 1,811 | 112 | | | | | | | | | | | | | | | | | | | | | |

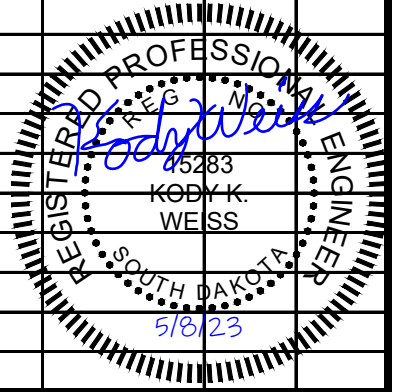


FENCE QUANTITIES

Plotting Date: 12/01/2022 Rev 5/08/2023 KKW

| | | |
|----------------------------|--------------|----------------------|
| PROJECT NH 0018(157)438 | SHEET B19 | TOTAL SHEETS B139 |
|----------------------------|--------------|----------------------|

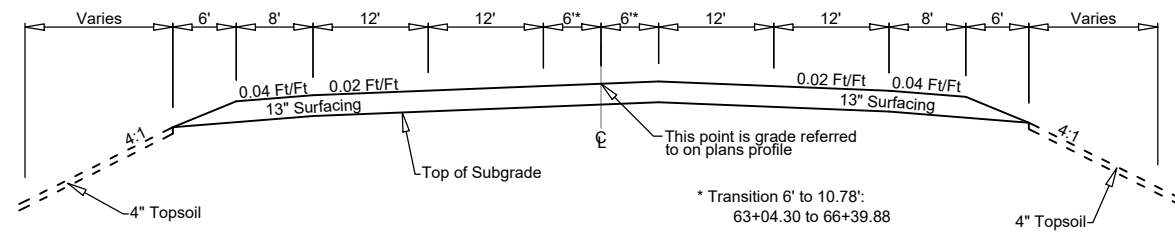
| Station to Station | | Side (L/R) | Right-of-Way Fence | | | Temporary Fence | | Post Panels | | | Reset Fence | Reset Gate | Tubular Gate | | Remove Fence | | Remove Gate | | | | | | | |
|--------------------|------------------|------------|--------------------|---------------|--------------|-----------------|---------------|-----------------|-----------------------|-----------------------|-------------|------------|--------------|-----------|--------------|-----------------|-----------------|--|--|--|--|--|--|--|
| | | | Type 2 Ft | Type 2s Ft | Type 6 Ft | Type 1A Ft | Type 2s Ft | Wood Post EA | 2 Post Panel EA | 3 Post Panel EA | Ft | EA | 12' EA | 20' EA | Ft | For Reset Ft | For Reset Ft | | | | | | | |
| 46+50.00-101.0' | 53+50.00-101.0' | L | 950 | | | | | | 2 | 2 | | | | | 950 | | | | | | | | | |
| 93+40.55-186.8' | 105+01.82-151.0' | R | | | | 1,200 | | | | | | | | | | | | | | | | | | |
| 104+67.41-121.1' | 115+75.47-210.1' | R | | | | 1,230 | | | | | | | | | | | | | | | | | | |
| 74+91.61-101.0' | 81+33.37-101.0' | R | 659 | | | | | | 8 | | | | | | 262 | | | | | | | | | |
| 156+55.32-76.0' | 159+55.34-76.0' | L | | | | | | 3 | | | 273 | 1 | | | 46 | 273 | 1 | | | | | | | |
| 192+38.98-100' | 192+38.98-120' | R | | 24 | | | | | 3 | | | | | | | | | | | | | | | |
| 219+89.04-27.9' | 222+27.36-124.6' | L&R | | | | | | | | | | | | | 872 | | | | | | | | | |
| 228+12.55-156.7' | 234+01.96-101.0' | L | 600 | | | | | | 5 | | | | | | 642 | | | | | | | | | |
| 251+88.00-165.0' | - | R | | | | | | 1 | | | | | | | | | | | | | | | | |
| 278+70.80-52.8' | 285+74.19-5.0' | L&R | | | | | | | | | | | | | 705 | | | | | | | | | |
| 293+43.22-33.5' | 304+87.97-35.2' | L | | | | | | | | | | | | | 1,144 | | | | | | | | | |
| 304+86.32-102.1' | 331+03.41-101.0' | L | 2,646 | | | | | | 21 | 2 | | | | 2 | 2,614 | | | | | | | | | |
| 304+88.23-101.0' | 324+26.53-101.0' | R | 1,949 | | | | | | 11 | 4 | | | | | 1,935 | | | | | | | | | |
| 324+26.53-101.0' | 330+96.50-101.0' | R | 720 | | | | | | 8 | | | | | | 859 | | | | | | | | | |
| 331+68.73-101.0' | 344+02.00-101.0' | L | | | 1,271 | | | | 5 | 3 | | | | | 1,225 | | | | | | | | | |
| 349+57.78-102.5' | 356+24.79-145.0' | L | | | 670 | | | | 6 | | | | | | 665 | | | | | | | | | |
| 356+25.79-145.0' | 368+97.40-101.0' | R | | | | | | | | | | | | | 1,292 | | | | | | | | | |
| 369+37.40-101.0' | 382+29.60-101.0' | R | | | | | | | | | | | | | 1,342 | | | | | | | | | |
| 386+31.31-141.3' | 386+49.98-101.0' | R | 41 | | | | | | 1 | 2 | | | | | 177 | | | | | | | | | |
| 386+49.87-101.0' | 392+90.58-101.0' | R | | 659 | | | 675 | | | 1 | | | | 1 | 759 | | | | | | | | | |
| 393+11.29-101.0' | 393+67.29-101.0' | R | 32 | | | | | | 1 | 1 | | | | | | | | | | | | | | |
| 359+79.26-101.8' | 395+79.45-120.0' | L | 18 | | | | | | 1 | | | | | | 18 | | | | | | | | | |
| 408+92.20-101.0' | 434+11.75-123.7' | L | 2,539 | | | | | | 14 | 2 | | | | | 2,579 | | | | | | | | | |
| 408+92.65-101.0' | 410+93.98-118.4' | R | 1,014 | | | | | | 4 | | | | | | 226 | | | | | | | | | |
| 410+93.98-118.4' | 410+93.69-169.0' | R | 50 | | | | | | 3 | | | | | | 527 | | | | | | | | | |
| 410+93.84-143.4' | 412+14.44-169.0' | R | 123 | | | | | | 2 | | | | | | | | | | | | | | | |
| 416+29.79-126.9' | 421+97.87-101.0' | R | 584 | | | | | | 3 | | | | | | | | | | | | | | | |
| 430+12.58-130.5' | 430+36.41-101.0' | R | 53 | | | | | | 3 | | | | | | 65 | | | | | | | | | |
| 430+36.41-101.0' | 434+98.49-126.3' | R | 462 | | | | | | 3 | | | | | | 563 | | | | | | | | | |
| 452+72.25-117.0' | 461+59.61-149.9' | L | 889 | | 49 | | | | 6 | 1 | | | | | 968 | | | | | | | | | |
| 455+59.22-101.0' | 461+61.28-120.8' | R | 631 | | | | | | 2 | 2 | | | | | 648 | | | | | | | | | |
| 461+80.17-101.0' | 466+96.19-95.0' | L | | | 620 | | | | 12 | | | | 1 | | 586 | | | | | | | | | |
| 461+60.88.86.1' | 474+80.51-73.9' | R | | | | | | | | | | | | | 1,375 | | | | | | | | | |
| TOTALS: | | | 13,960 | 683 | 2,610 | 2,430 | 675 | 4 | 124 | 20 | 273 | 1 | 3 | 1 | 23,044 | 273 | 1 | | | | | | | |



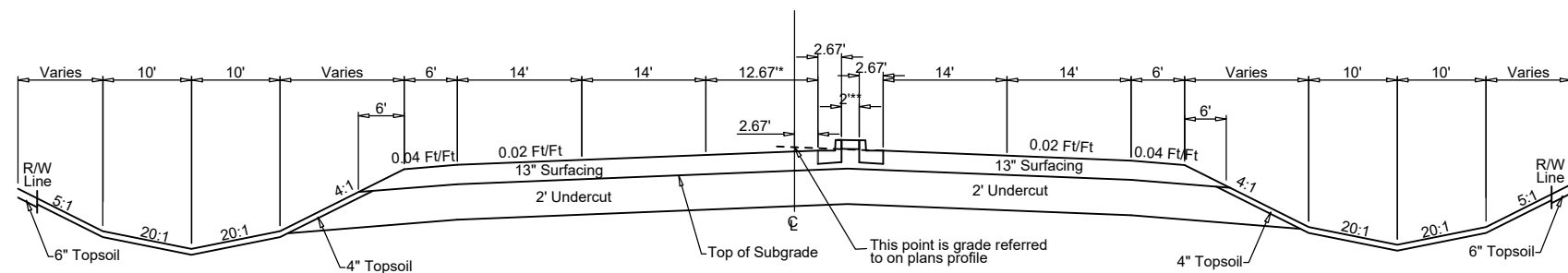
US 18 TYPICAL GRADING SECTIONS

PROPOSED US HIGHWAY 18 TYPICAL SECTION 4 63+04.30 TO 66+39.88

Note: The grading for this section was completed as part of PCN 035A



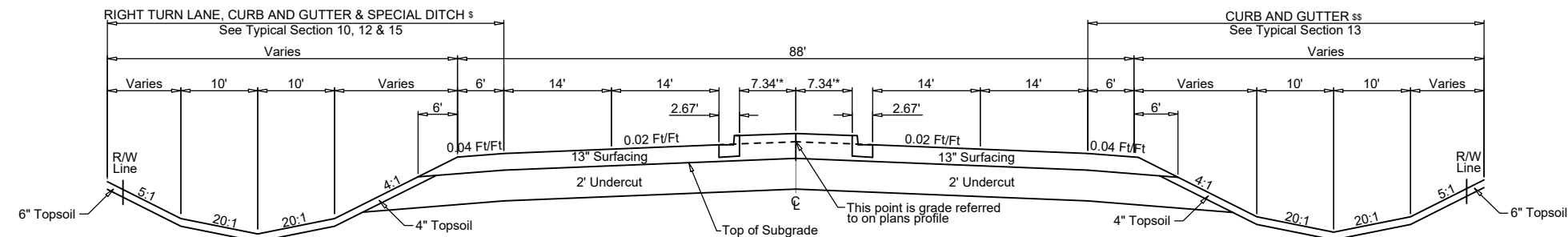
PROPOSED US HIGHWAY 18 TYPICAL SECTION 5 67+37.30 TO 69+44.46



* Transition 12.67' to 0':
68+24.32 to 69+44.46
** Transition 2' to 14.67':
68+24.32 to 69+44.46

PROPOSED US HIGHWAY 18 TYPICAL SECTION 6

| | | |
|------------------------|------------------------|------------------------|
| 69+44.46 TO 89+64.61 | 202+87.94 TO 218+72.73 | 338+22.63 TO 352+53.76 |
| 97+08.01 TO 113+03.36 | 232+35.74 TO 248+16.20 | 359+97.16 TO 378+68.81 |
| 126+70.53 TO 142+58.74 | 255+59.60 TO 274+39.42 | 386+53.19 TO 408+76.72 |
| 150+02.14 TO 168+79.96 | 282+38.15 TO 304+33.92 | 416+20.12 TO 428+55.84 |
| 176+64.91 TO 195+44.54 | 311+77.31 TO 324+53.83 | 442+14.09 TO 459+15.61 |



§ Right Turn Lane Locations
226+05.55 to 232+91.40
435+88.62 to 442+92.21

Curb and Gutter Locations
156+55.32 to 159+57.30
322+09.62 to 326+03.18

Special Ditch Locations
448+18.85 to 452+30.20

* Transition 7.34' to 12.34':
86+14.61 to 89+64.61
109+53.36 to 113+03.36
139+08.74 to 142+58.74
165+29.91 to 168+79.96
191+94.54 to 195+44.54

215+22.73 to 218+72.73
244+66.20 to 248+16.20
270+89.42 to 274+39.42
300+83.91 to 304+33.92
321+03.80 to 324+53.83

349+03.76 to 352+53.76
375+18.81 to 378+68.81
405+26.72 to 408+76.72
425+05.84 to 428+55.84

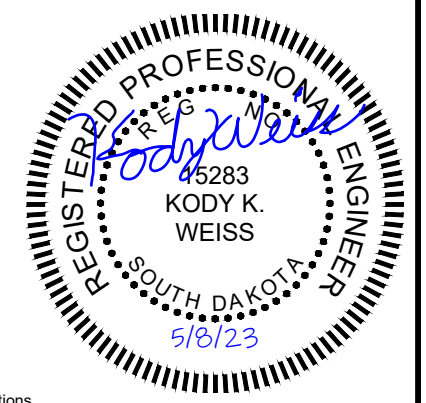
* Transition 12.34' to 7.34':
97+08.01 to 100+58.01
126+70.53 to 130+20.53
150+02.14 to 153+52.14
176+64.91 to 180+14.91
202+87.94 to 206+37.94

232+35.74 to 235+85.77
255+59.60 to 259+09.60
282+38.15 to 285+88.15
311+77.31 to 315+27.31
338+22.63 to 341+72.63

359+97.16 to 363+47.16
386+53.19 to 390+03.19
416+20.12 to 419+70.12
442+14.09 to 445+64.10

* Transition 7.34' to 4.63':
457+12.07 to 459+15.61

§§ Curb and Gutter Locations
449+32.63 to 452+82.45



S:\0-2019 Projects\19008 - SDDOT US18 Grading & Interim Surfacing Design\CAD SHEETS\B-TYPICAL SECTIONS.dwg PLOT DATE: 5/6/2023 8:38 AM Kody Weiss

US 18 TYPICAL GRADING SECTIONS

| | | | |
|-----------------------|-----------------------------------|-------------------------|-----------------------------|
| STATE OF SOUTH DAKOTA | PROJECT NH 0018(157)438 | SHEET NO. B24 | TOTAL SHEETS B139 |
|-----------------------|-----------------------------------|-------------------------|-----------------------------|

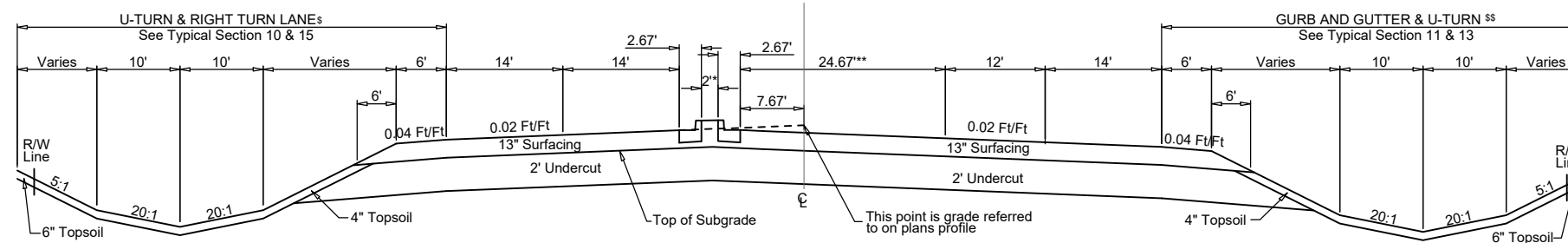
Plotting Date: 12/01/2022 Rev 5/08/2023 KKW

PROPOSED US HIGHWAY 18 TYPICAL SECTION 7

89+64.61 to 92+67.62
 113+03.36 to 119+23.45
 142+58.74 to 146+05.44
 168+79.96 to 172+22.10
 195+44.54 to 198+91.24

218+72.73 to 225+01.92
 248+16.20 to 251+62.90
 274+39.42 to 277+86.12
 304+33.92 to 307+35.58
 324+53.83 to 330+80.67

352+53.76 to 356+00.46
 378+68.81 to 382+01.56
 408+76.72 to 411+95.46
 428+55.84 to 434+83.56



§ U-Turn Locations
 144+45.48 to 147+27.53
 197+42.58 to 199+83.87
 250+03.84 to 252+86.82
 305+74.28 to 308+73.34

Right Turn Lane Locations
 226+05.55 to 232+91.40
 435+88.62 to 442+92.21

354+49.40 to 356+93.16
 410+34.45 to 413+16.09
 460+31.08 to 461+13.29

* Transition 24.67' to 2'
 89+64.61 to 92+11.31
 113+03.36 to 115+50.06
 142+58.74 to 145+05.44
 168+79.96 to 171+26.68
 195+44.54 to 197+91.24
 218+72.73 to 221+19.43
 248+16.20 to 250+62.90
 274+39.42 to 276+86.12

304+33.92 to 306+80.61
 324+53.83 to 327+00.46
 352+53.76 to 355+00.46
 378+68.81 to 381+15.51
 408+76.72 to 411+23.42
 428+55.84 to 431+02.52

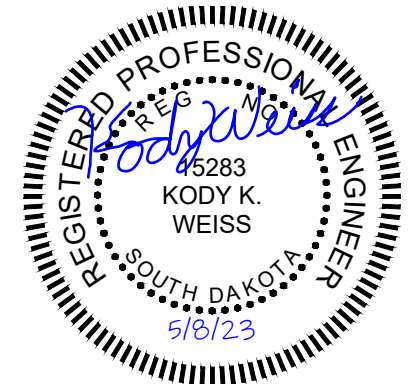
** Transition 0' to 24.67'
 89+64.61 to 92+11.31
 113+03.36 to 115+50.06
 142+58.74 to 145+05.44
 168+79.96 to 171+26.68
 195+44.54 to 197+91.24
 218+72.73 to 221+19.43
 248+16.20 to 250+62.90
 274+39.42 to 276+86.12

304+33.92 to 306+80.61
 324+53.83 to 327+00.46
 352+53.76 to 355+00.46
 378+68.81 to 381+15.51
 408+76.72 to 411+23.42
 428+55.84 to 431+02.52

§§ U-Turn Locations
 92+39.03 to 95+21.09
 145+62.82 to 148+04.12
 198+48.62 to 200+89.92
 250+90.54 to 253+71.69

Curb and Gutter Locations
 449+32.63 to 452+82.45

307+26.58 to 309+95.49
 355+58.09 to 357+98.17
 411+81.03 to 414+22.86



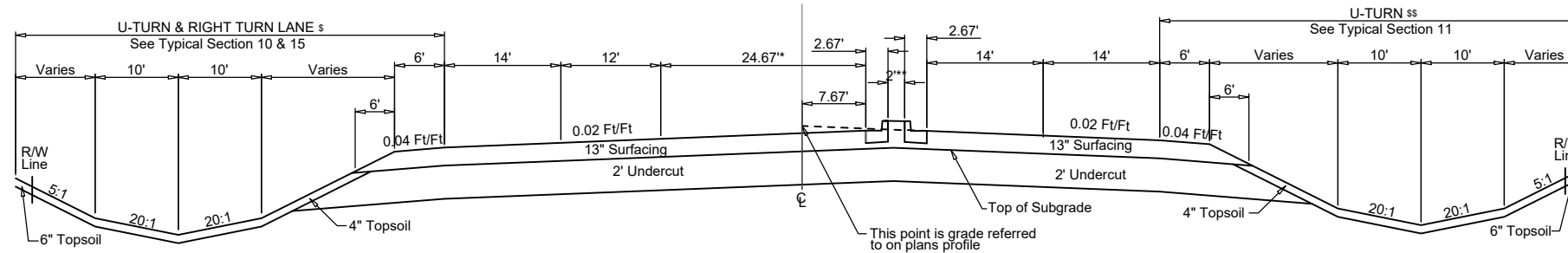
US 18 TYPICAL GRADING SECTIONS

PROPOSED US HIGHWAY 18 TYPICAL SECTION 8

93+61.31 to 97+08.01
120+53.19 to 126+70.53
147+02.70 to 150+02.14
173+23.70 to 176+64.91
199+41.24 to 202+87.94

226+05.55 to 232+35.74
252+49.85 to 255+59.60
278+91.45 to 282+38.15
308+30.61 to 311+77.31
332+07.79 to 338+22.63

356+50.46 to 359+97.16
383+23.69 to 386+53.19
412+73.42 to 416+20.12
435+88.62 to 442+14.09



§ U-Turn Locations

144+45.48 to 147+27.53
197+42.58 to 199+83.87
250+03.84 to 252+86.82
305+74.28 to 308+73.34
Right Turn Lane Locations
226+05.55 to 232+91.40
435+88.62 to 442+92.21

354+49.40 to 356+93.16
410+34.45 to 413+16.09
460+31.08 to 461+13.29

*** Transition 24.67' to 0'**

94+61.44 to 97+08.01
124+23.96 to 126+70.53
147+55.58 to 150+02.14
174+18.34 to 176+64.91
200+41.38 to 202+87.94
229+89.16 to 232+35.74
253+13.03 to 255+59.60
279+91.69 to 282+38.15

309+30.74 to 311+77.31
335+76.06 to 338+22.63
357+50.60 to 359+97.16
384+06.63 to 386+53.19
413+73.55 to 416+20.12
439+87.53 to 442+14.09

**** Transition 2' to 24.67'**

94+61.44 to 97+08.01
124+23.96 to 126+70.53
147+55.58 to 150+02.14
174+18.34 to 176+64.91
200+41.38 to 202+87.94
229+89.16 to 232+35.74
253+13.03 to 255+59.60
279+91.69 to 282+38.15

309+30.74 to 311+77.31
335+76.06 to 338+22.63
357+50.60 to 359+97.16
384+06.63 to 386+53.19
413+73.55 to 416+20.12
439+87.53 to 442+14.09

§§ U-Turn Locations

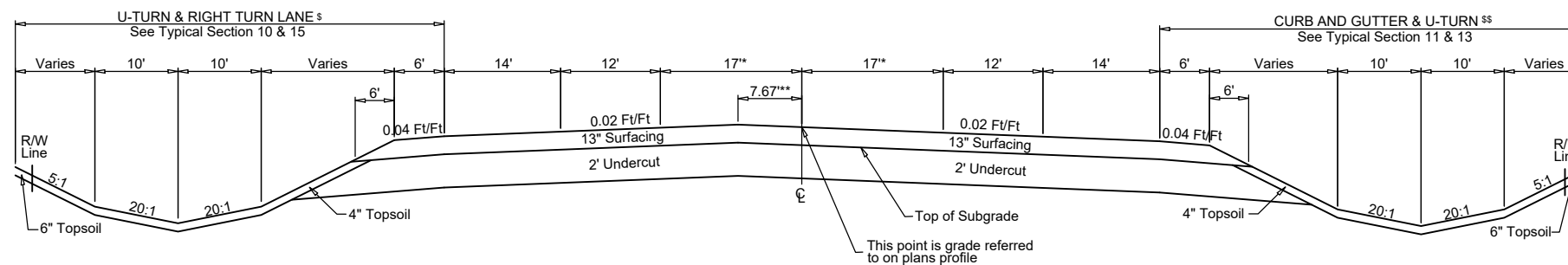
92+39.03 to 95+21.09
145+62.82 to 148+04.12
198+48.62 to 200+89.92
250+90.54 to 253+71.69
307+26.58 to 309+95.49
355+58.09 to 357+98.17
411+81.03 to 414+22.86

PROPOSED US HIGHWAY 18 TYPICAL SECTION 9

66+39.88 to 67+37.30
92+67.62 to 93+61.31
119+23.45 to 120+53.19
146+05.44 to 147+02.70
172+22.10 to 173+23.70

198+91.24 to 199+41.24
225+01.92 to 226+05.55
251+62.90 to 252+49.85
277+86.12 to 278+91.45
307+35.58 to 308+30.61
330+80.67 to 332+07.79

356+00.46 to 356+50.46
382+01.56 to 383+23.69
411+95.46 to 412+73.42
434+83.56 to 435+88.62



§ U-Turn Locations

144+45.48 to 147+27.53
197+42.58 to 199+83.87
250+03.84 to 252+86.82
305+74.28 to 308+73.34
Right Turn Lane Locations
226+05.55 to 232+91.40
435+88.62 to 442+92.21

354+49.40 to 356+93.16
410+34.45 to 413+16.09
460+31.08 to 461+13.29

*** Transition 10.78' to 12'**

66+39.88 to 67+24.32

*** 12'**
67+24.32 to 67+37.30

**** Crown Transition 10.78' Rt to 2.67' Lt**

66+39.88 to 67+37.30

**** Crown Transition 7.67' Lt to 7.67' Rt**

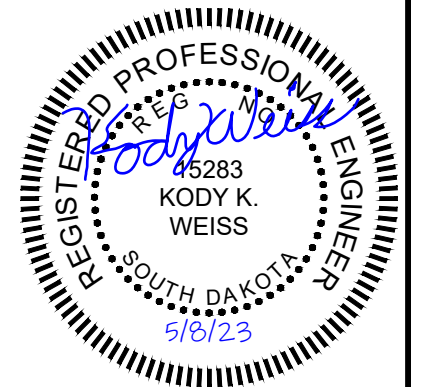
92+67.62 to 93+61.31
119+23.45 to 120+53.19
146+05.44 to 147+02.70
172+22.10 to 173+23.70
198+91.24 to 199+41.24
225+01.92 to 226+05.55
251+62.90 to 252+49.85

277+86.12 to 278+91.45
307+35.58 to 308+30.61
330+80.67 to 332+07.79
356+00.46 to 356+50.46
382+01.56 to 383+23.69
411+95.46 to 412+73.42
434+83.56 to 435+88.62

§§ U-Turn Locations

92+39.03 to 95+21.09
145+62.82 to 148+04.12
198+48.62 to 200+89.92
250+90.54 to 253+71.69
307+26.58 to 309+95.49
355+58.09 to 357+98.17
411+81.03 to 414+22.86

Curb and Gutter Locations
449+32.63 to 452+82.45

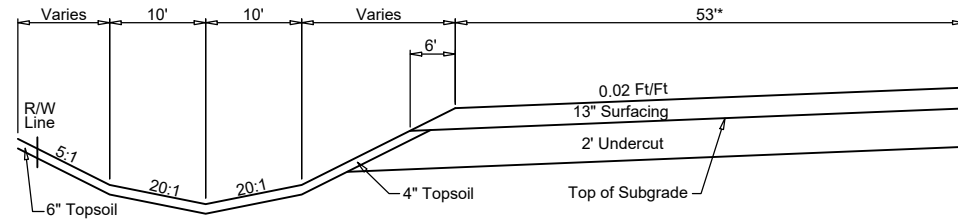


US 18 TYPICAL GRADING SECTIONS

Plotting Date: 12/01/2022 Rev 5/08/2023 KKW

PROPOSED LEFT U-TURN TYPICAL SECTION 10

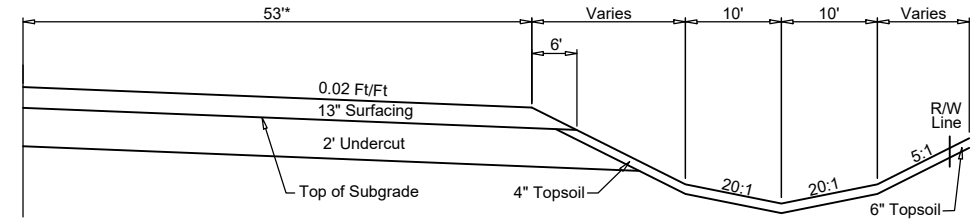
144+45.48 to 147+27.53 250+03.84 to 252+86.82 354+49.40 to 356+93.16
 197+42.58 to 199+83.87 305+74.28 to 308+73.34 410+34.45 to 413+16.09



| | | | |
|------------------------|------------------------|------------------------|------------------------|
| *Transition 6' to 53' | | *Transition 53' to 6' | |
| 144+45.48 to 145+74.92 | 305+74.20 to 307+01.92 | 146+84.90 to 147+27.53 | 308+30.61 to 308+73.34 |
| 197+42.58 to 198+72.01 | 354+49.40 to 355+81.01 | 199+41.24 to 199+83.87 | 356+50.46 to 356+93.16 |
| 250+03.84 to 251+33.27 | 410+34.45 to 411+63.08 | 252+44.19 to 252+86.82 | 412+73.42 to 413+16.09 |

PROPOSED RIGHT U-TURN TYPICAL SECTION 11

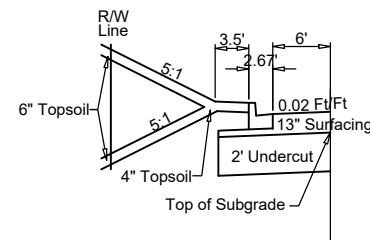
92+39.03 to 95+21.09 198+48.62 to 200+89.92 307+38.24 to 309+80.04
 145+62.82 to 148+04.12 250+90.54 to 253+71.69 411+81.03 to 414+22.86



| | | | |
|------------------------|------------------------|------------------------|------------------------|
| *Transition 6' to 53' | | *Transition 53' to 6' | |
| 92+39.03 to 92+81.66 | 307+26.58 to 307+69.02 | 93+91.66 to 95+21.09 | 308+64.39 to 309+95.49 |
| 145+62.82 to 146+05.44 | 355+58.09 to 356+00.46 | 146+74.69 to 148+04.12 | 356+69.49 to 357+98.17 |
| 198+48.62 to 198+91.24 | 411+81.03 to 412+23.42 | 199+60.49 to 200+89.92 | 412+92.20 to 414+22.86 |
| 250+90.54 to 251+33.17 | | 252+42.26 to 253+71.69 | |

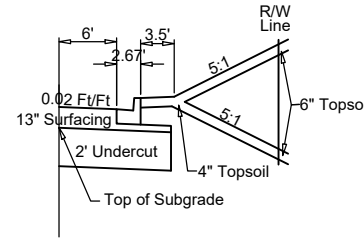
PROPOSED CURB AND GUTTER TYPICAL SECTION 12

156+55.32 to 159+57.30
 322+09.62 to 326+03.18



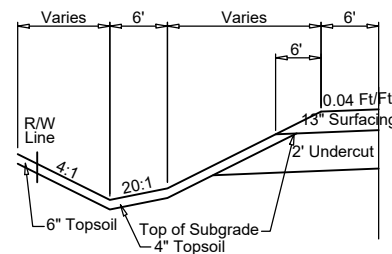
PROPOSED CURB AND GUTTER TYPICAL SECTION 13

449+32.63 to 452+82.45



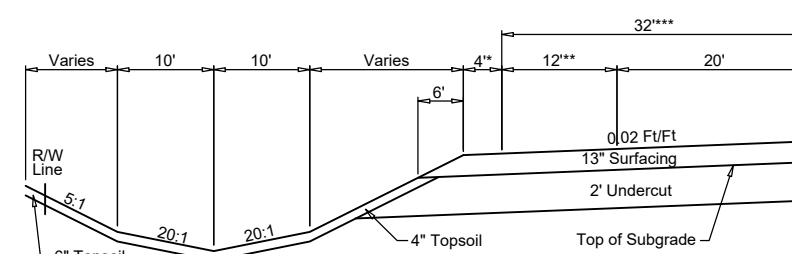
PROPOSED SPECIAL DITCH TYPICAL SECTION 14

448+18.85 to 452+30.20



PROPOSED RIGHT TURN LANE TYPICAL SECTION 15

226+05.55 to 232+91.40
 435+88.62 to 442+92.21

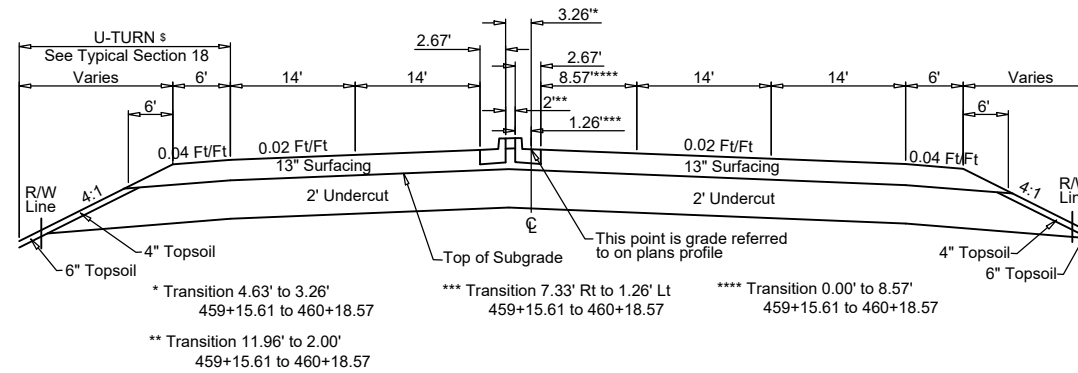


| | | |
|------------------------|-------------------------|-------------------------|
| *Transition 4' to 8' | **Transition 12' to 14' | ***Transition 32' to 0' |
| 439+91.56 to 440+11.20 | 439+72.12 to 439+91.56 | 439+72.12 to 442+92.21 |

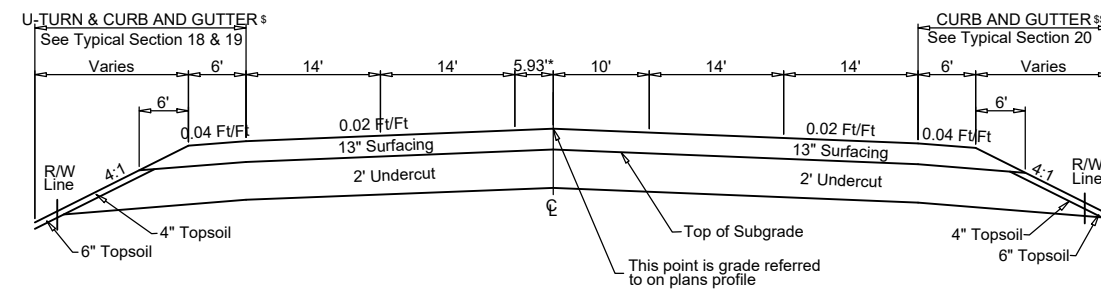


US 18 TYPICAL GRADING SECTIONS

PROPOSED US HIGHWAY 18 TYPICAL SECTION 16 459+15.61 to 460+18.57



PROPOSED US HIGHWAY 18 TYPICAL SECTION 17 460+18.57 to 473+32.29

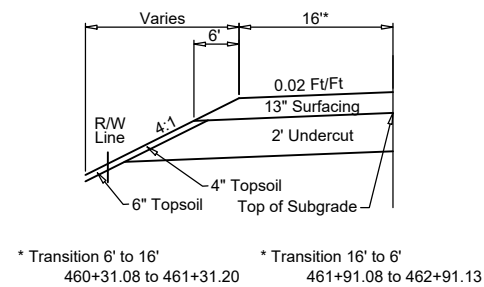


§ U-Turn Location
461+31.08 to 462+91.13

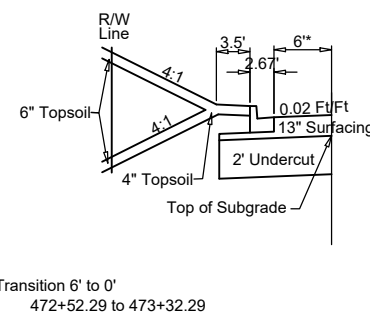
Curb and Gutter Location
466+09.95 to 473+32.29

ss Curb and Gutter Location
466+29.54 to 473+32.29

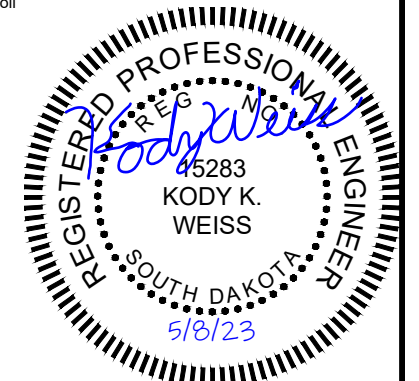
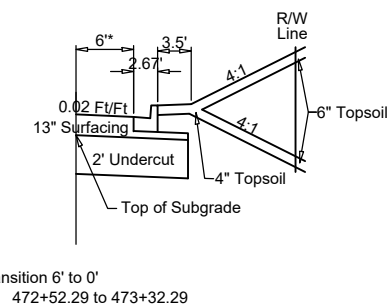
PROPOSED U-TURN TYPICAL SECTION 18 460+31.08 to 462+91.13



PROPOSED CURB AND GUTTER TYPICAL SECTION 19 466+09.95 to 473+32.29



PROPOSED CURB AND GUTTER TYPICAL SECTION 20 466+29.54 to 473+32.29



US HWY 18 PLAN VIEW

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| STATE OF SOUTH DAKOTA | PROJECT NH 0018(157)438 | SHEET NO. B38 | TOTAL SHEETS B139 |
|-----------------------|-----------------------------------|------------------|----------------------|

Plotting Date: 12/01/2022 Rev 5/08/2023 KKW

85+73.26-55' L
Take Out 24" - 37' RCP
(Incidental Work, Grading)

Sec 17 -T98N - R50W

93+55.72-87' R
Take Out 18" - 41' RCP
(Incidental Work, Grading)

Parcel 4 owner has indicated drain tile is installed in the property. The landowner will identify the location of the drain tile.

98+45L - 77' L (52 ac)
Install 30" - 52' CMP
& 2 Safety Ends

Darrel & Pat Bonnema Living Trust
and Helen B. Short Living Trust

Parcel 4
Omitted
SE1/4
Parcel A22

PI 93+36.31
N 373073.57
E 2914878.15
Del 0°00'00" R

Progressive Ag Holdings, LLC

Parcel 1

88+74 L
Elim Entrance

SW1/4

Property Line
400'

85+85 L
Elim Entrance

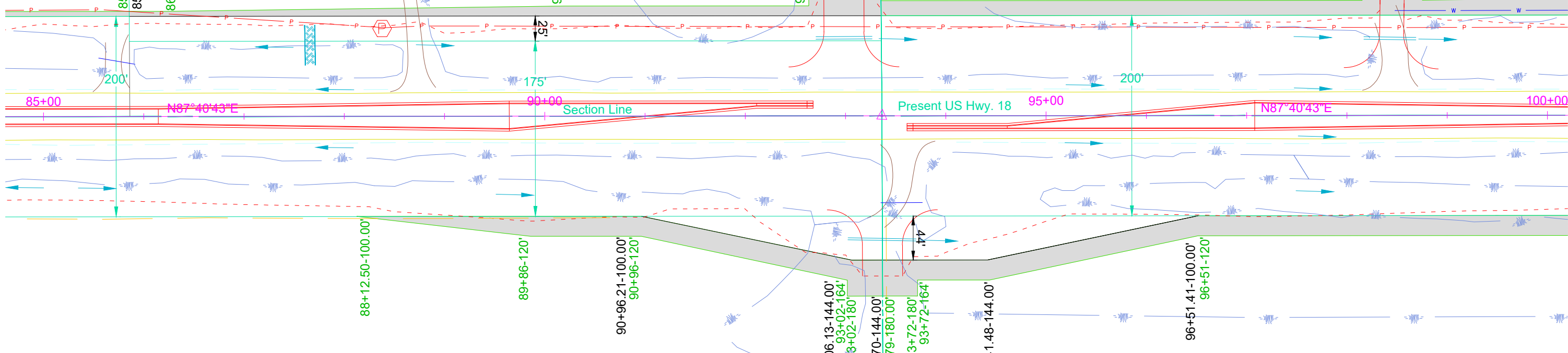
85+85.58-105.00'
85+85.62-100.00'
86+20-105'

Property Line
750'

1/4 Line

92+63-110'
92+63-149'
93+35.30-149.00'
93+35.63-100.00'
93+35.53-115.00'

98+15-115'
98+15-145'
98+75-145'
98+75-115'



Craig A. Broughton

Parcel 2

NW1/4

Craig A. Broughton

Parcel 5

NE1/4

Parcel 1
85+85.58 to 93+35.30 L
Temporary Easement containing
0.2 ac, more or less

Sec 20 -T98N - R50W

Parcel 2
88+12.50 to 93+36.79 R
Temporary Easement containing
0.2 ac, more or less

93+37R - 123' R (2 ac)
Install 24" - 68' CMP
& 2 Safety Ends

Parcel A22
93+35.53 to 119+53.98 L
Temporary Easement containing
1.5 ac, more or less

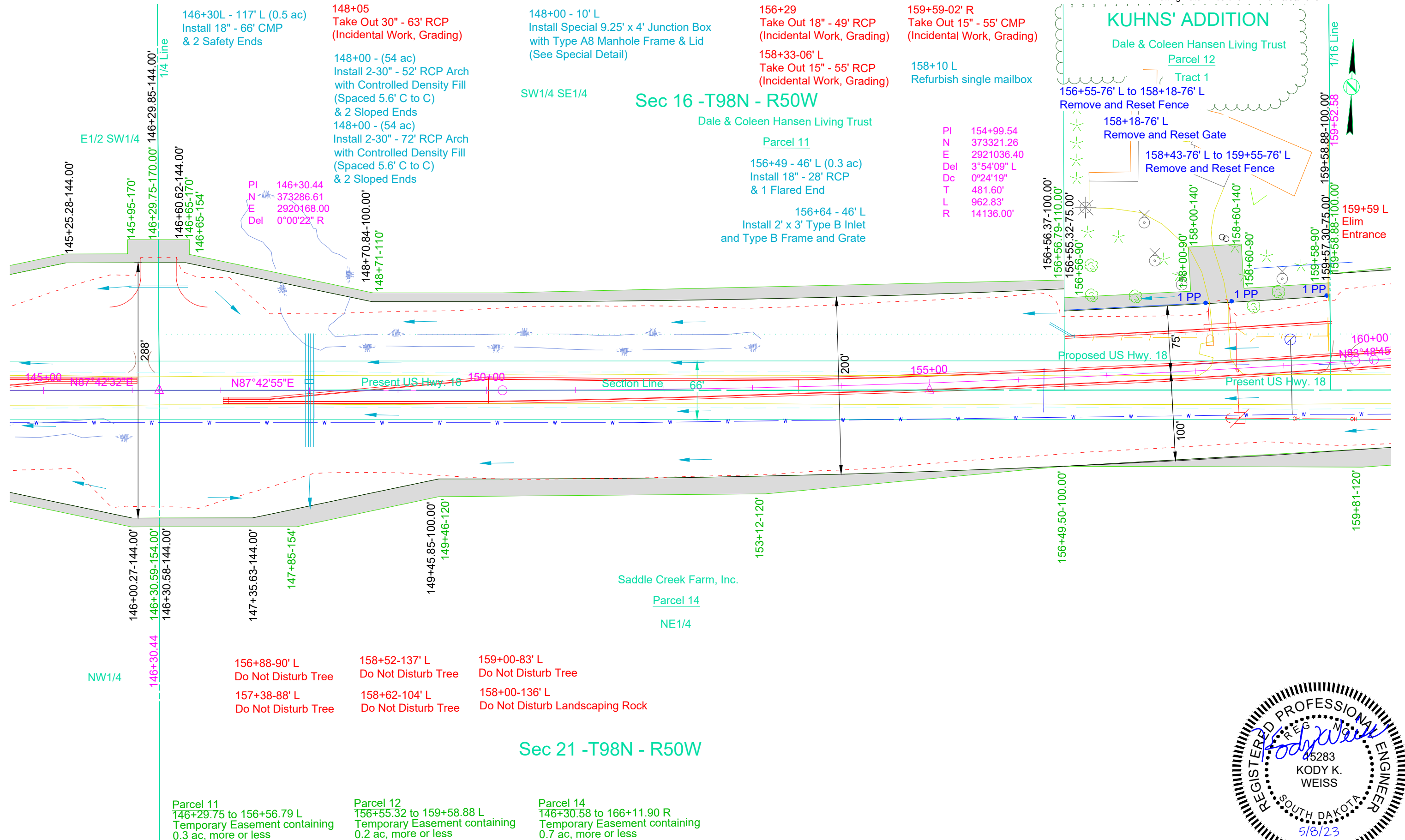
Parcel 5
93+36.70 to 115+75.48 R
Temporary Easement containing
1.2 ac, more or less



US HWY 18 PLAN VIEW

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| STATE OF SOUTH DAKOTA | PROJECT NH 0018(157)438 | SHEET NO. B46 | TOTAL SHEETS B139 |
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Plotting Date: 12/01/2022 Rev 5/08/2023 KKW



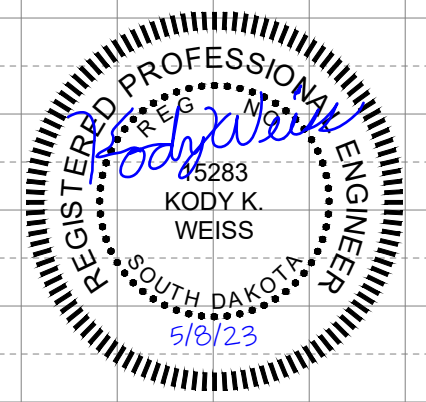
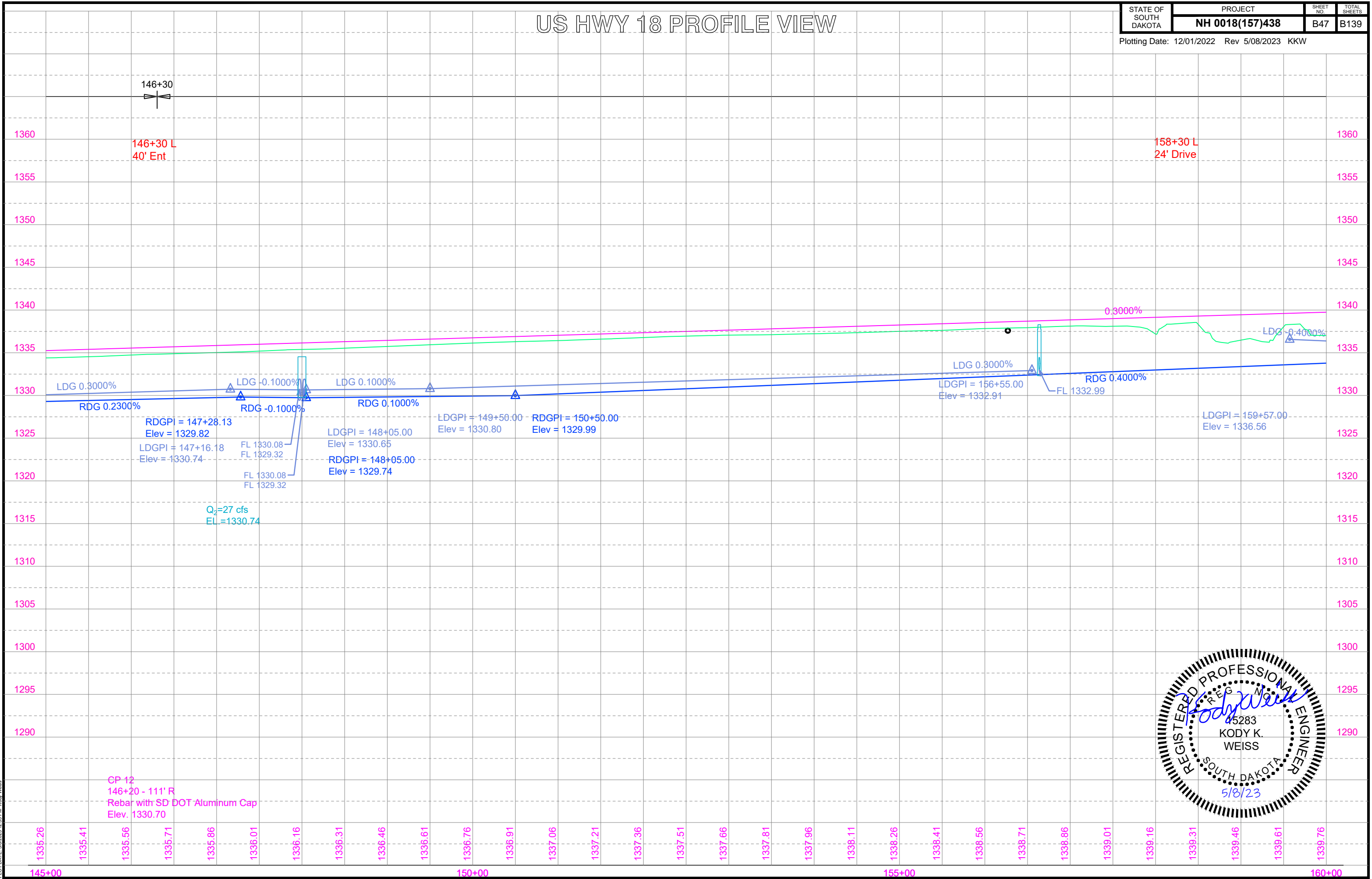
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US HWY 18 PROFILE VIEW

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| STATE OF SOUTH DAKOTA | PROJECT NH 0018(157)438 | SHEET NO. B47 | TOTAL SHEETS B139 |
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Plotting Date: 12/01/2022 Rev 5/08/2023 KKW

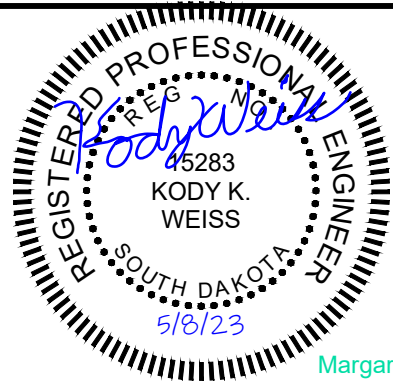


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US HWY 18 PLAN VIEW

| | | | |
|-----------------------|-----------------------------------|------------------|----------------------|
| STATE OF SOUTH DAKOTA | PROJECT NH 0018(157)438 | SHEET NO. B52 | TOTAL SHEETS B139 |
|-----------------------|-----------------------------------|------------------|----------------------|

Plotting Date: 12/01/2022 Rev 5/08/2023 KKW



Sec 15 -T98N - R50W

192+33 R
Refurbish single mailbox

199+26
Take Out 28" - 53' RCP
(Incidental Work, Grading)

199+32
Take Out 28" - 53' RCP
(Incidental Work, Grading)

199+38
Take Out 28" - 53' RCP
(Incidental Work, Grading)

199+22 - (675 ac)
Install 3-48" - 106' RCP Arch
with Controlled Density Fill
(Spaced 7.8' C to C to C)
& 3 Flared Ends

199+22 (675 ac)
Install 3-48" - 98' RCP Arch
with Controlled Density Fill
(Spaced 7.8' C to C to C)
& 3 Flared Ends

204+20R - 80' R (6 ac)
Install 30" - 40' CMP
& 2 Safety Ends

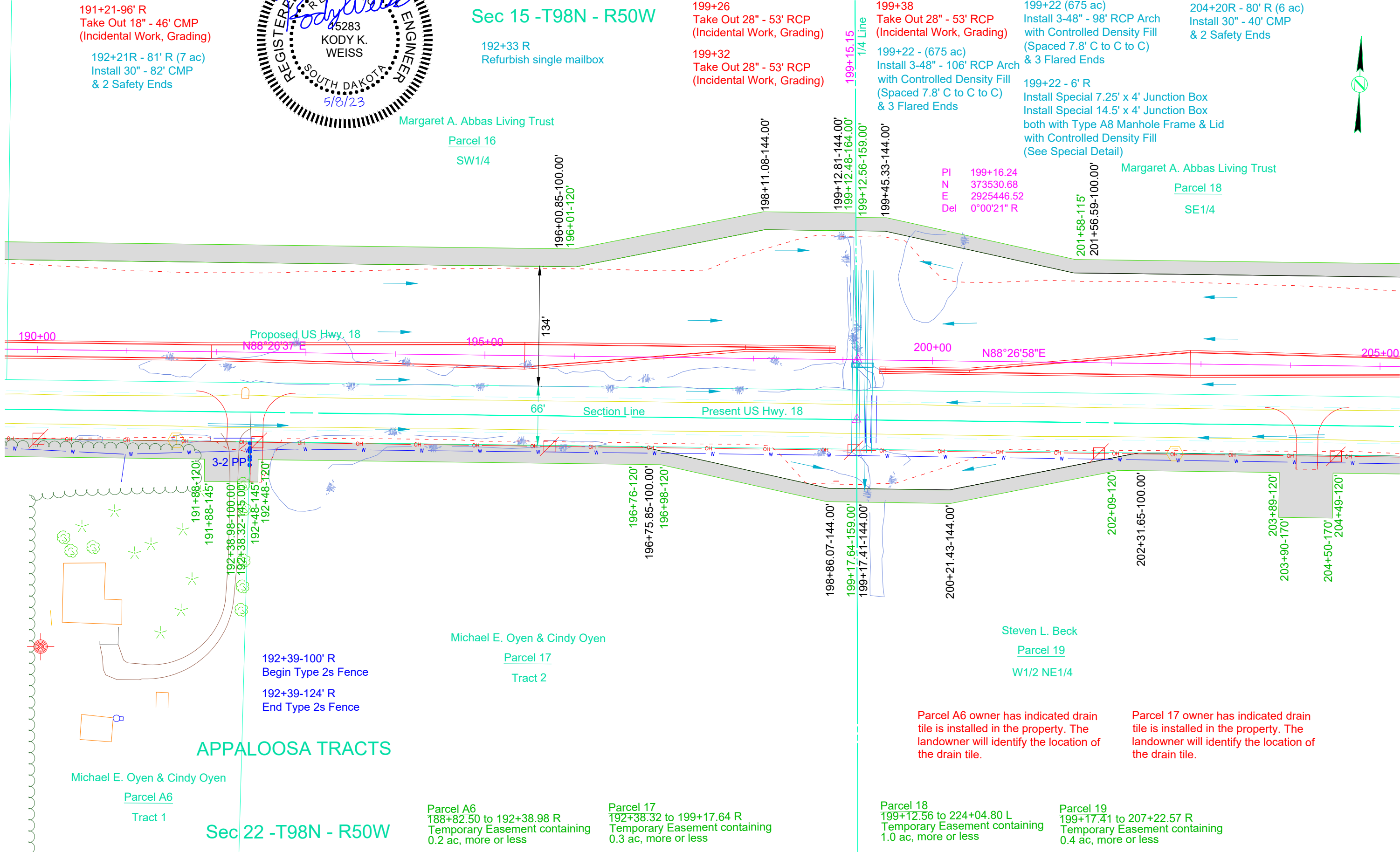
199+22 - 6' R
Install Special 7.25' x 4' Junction Box
Install Special 14.5' x 4' Junction Box
both with Type A8 Manhole Frame & Lid
with Controlled Density Fill
(See Special Detail)



Margaret A. Abbas Living Trust
Parcel 16
SW1/4

Margaret A. Abbas Living Trust
Parcel 18
SE1/4

PI 199+16.24
N 373530.68
E 2925446.52
Del 0°00'21" R



191+21-96' R
Take Out 18" - 46' CMP
(Incidental Work, Grading)

192+21R - 81' R (7 ac)
Install 30" - 82' CMP
& 2 Safety Ends

APPALOOSA TRACTS

Michael E. Oyen & Cindy Oyen
Parcel A6
Tract 1

192+39-100' R
Begin Type 2s Fence

192+39-124' R
End Type 2s Fence

Michael E. Oyen & Cindy Oyen
Parcel 17
Tract 2

Steven L. Beck
Parcel 19
W1/2 NE1/4

Parcel A6 owner has indicated drain tile is installed in the property. The landowner will identify the location of the drain tile.

Parcel 17 owner has indicated drain tile is installed in the property. The landowner will identify the location of the drain tile.

Parcel A6
188+82.50 to 192+38.98 R
Temporary Easement containing
0.2 ac, more or less

Parcel 17
192+38.32 to 199+17.64 R
Temporary Easement containing
0.3 ac, more or less

Parcel 18
199+12.56 to 224+04.80 L
Temporary Easement containing
1.0 ac, more or less

Parcel 19
199+17.41 to 207+22.57 R
Temporary Easement containing
0.4 ac, more or less

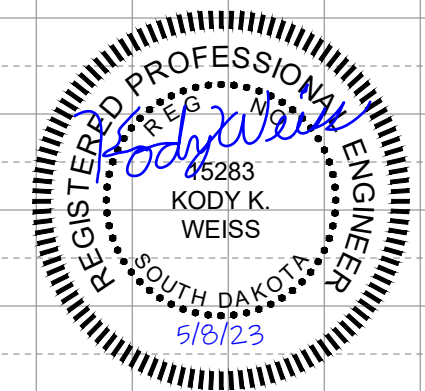
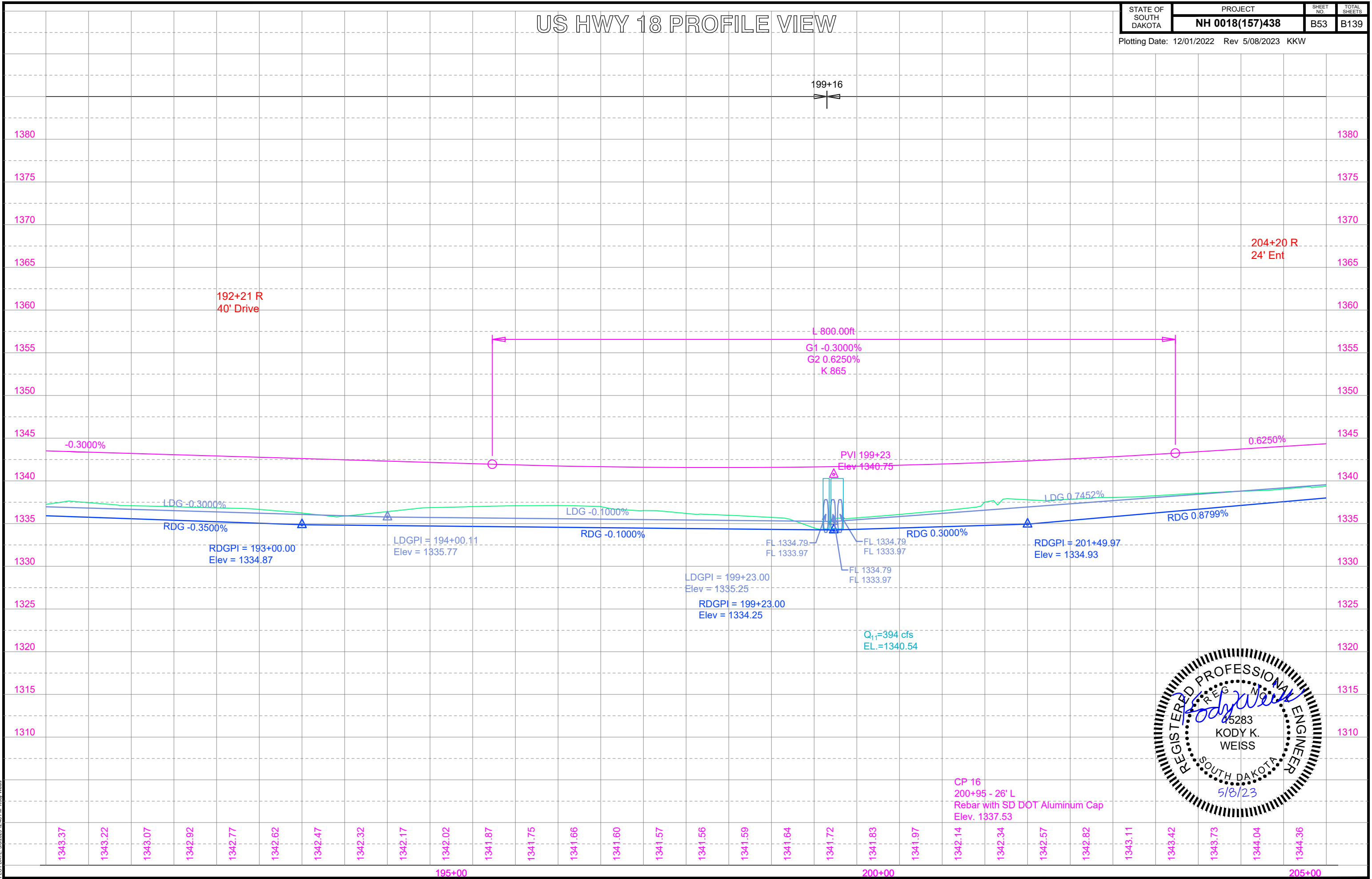
Sec 22 -T98N - R50W

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US HWY 18 PROFILE VIEW

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| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
| | NH 0018(157)438 | B53 | B139 |

Plotting Date: 12/01/2022 Rev 5/08/2023 KKW



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US HWY 18 PLAN VIEW

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| STATE OF SOUTH DAKOTA | PROJECT NH 0018(157)438 | SHEET NO. B56 | TOTAL SHEETS B139 |
|-----------------------|-----------------------------------|------------------|----------------------|

Plotting Date: 12/01/2022 Rev 5/08/2023 KKW

Sec 15 -T98N - R50W

223+28 R
Take Out 24" - 57' RCP
(Incidental Work, Grading)

Margaret A. Abbas Living Trust
Parcel 18
SE1/4

226+26 R
Take Out 30" - 105' RCP
(Incidental Work, Grading)

226+32 R
Take Out 30" - 101' RCP
(Incidental Work, Grading)

226+50 - (93 ac)
Install 4-36" - 72' RCP Arch
with Controlled Density Fill
(Spaced 6.7' C to C to C to C)
& 4 Flared Ends

226+50 (93 ac)
Install 4-36" - 72' RCP Arch
with Controlled Density Fill
(Spaced 6.7' C to C to C to C)
& 4 Flared Ends

226+50 - 11' L
Install 2 Special 12' x 4' Junction Box
both with Type A8 Manhole Frame & Lid
with Controlled Density Fill
(See Special Detail)

Sec 14 -T98N - R50W

Craig Stearns & Lee Ann Stearns
Parcel 20
SW1/4



| | |
|-----|------------|
| PI | 225+52.70 |
| N | 373602.02 |
| E | 2928082.01 |
| Del | 0°54'40" L |
| Dc | 0°24'19" |
| T | 112.39' |
| L | 224.78' |
| R | 14136.00' |

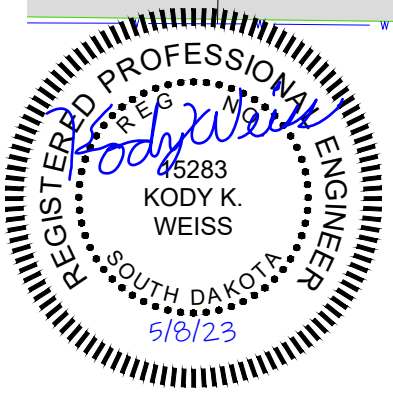
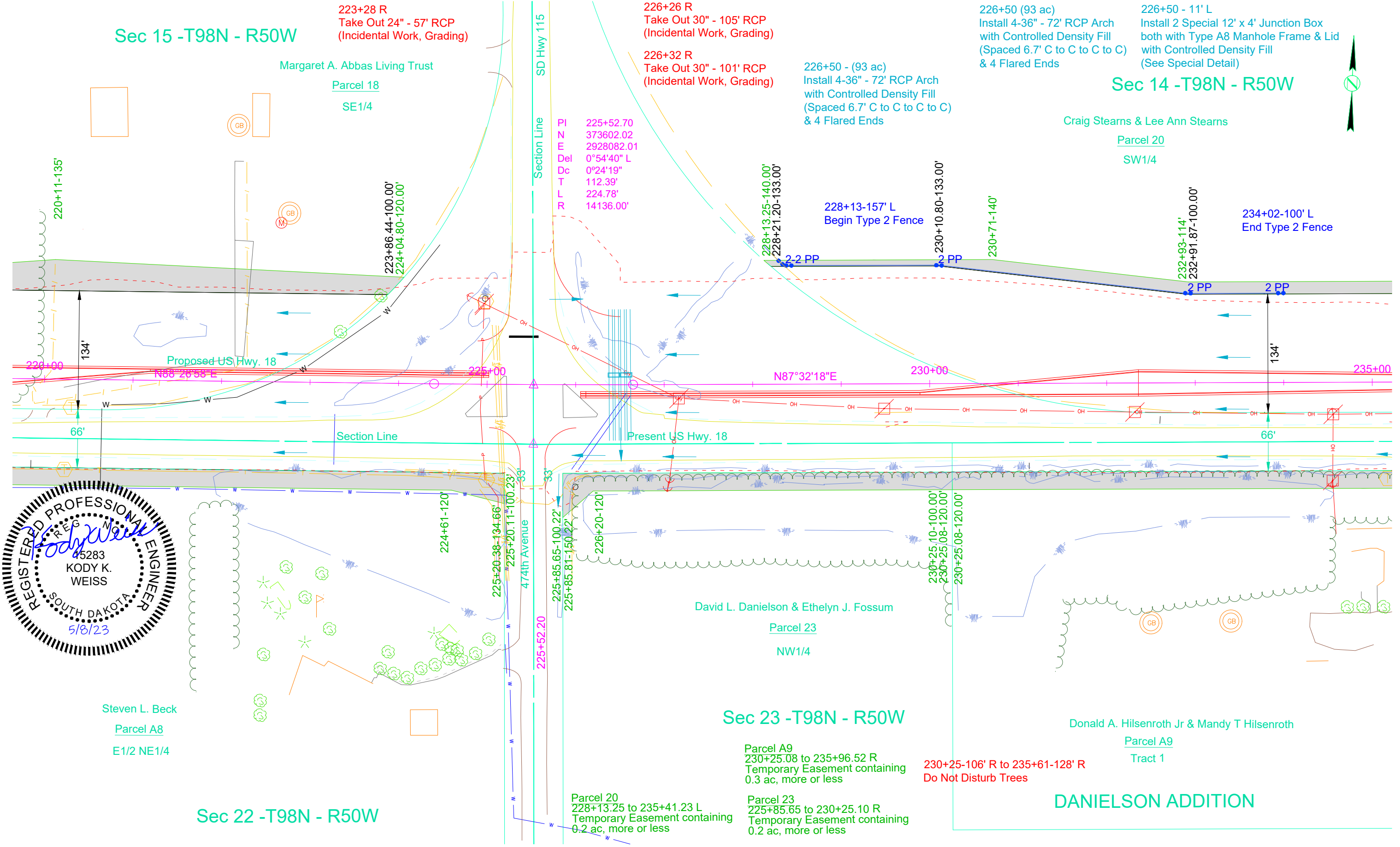
228+13-157' L
Begin Type 2 Fence

230+10.80-133.00'

230+71-140'

232+93-114'
232+91.87-100.00'

234+02-100' L
End Type 2 Fence



Steven L. Beck
Parcel A8
E1/2 NE1/4

Sec 22 -T98N - R50W

Sec 23 -T98N - R50W

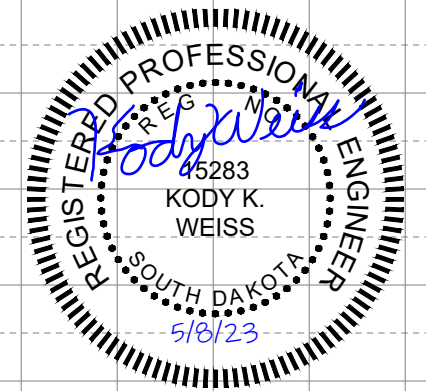
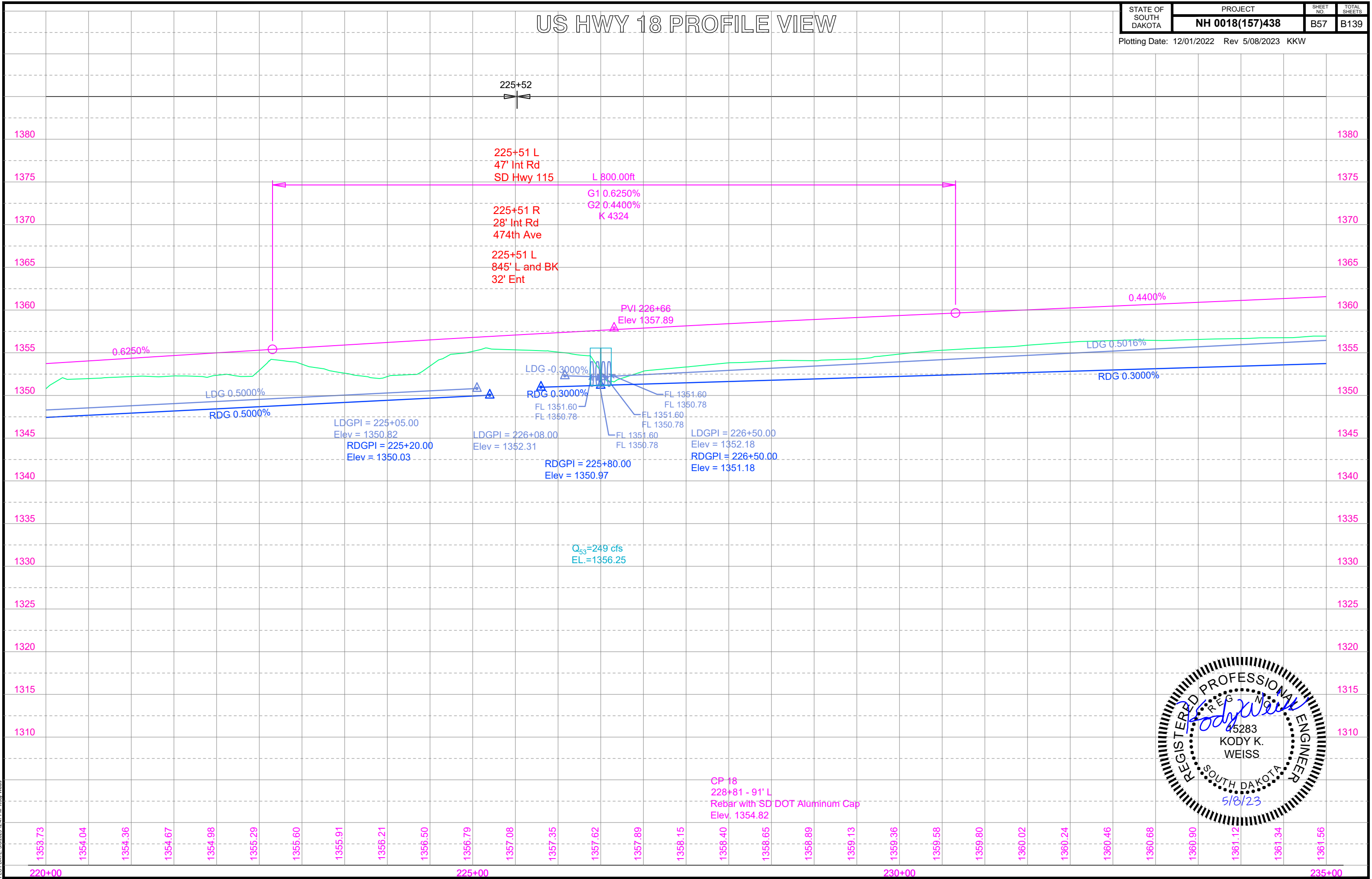
DANIELSON ADDITION

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US HWY 18 PROFILE VIEW

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| STATE OF SOUTH DAKOTA | PROJECT NH 0018(157)438 | SHEET NO. B57 | TOTAL SHEETS B139 |
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Plotting Date: 12/01/2022 Rev 5/08/2023 KKW



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US HWY 18 PLAN VIEW

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| STATE OF SOUTH DAKOTA | PROJECT NH 0018(157)438 | SHEET NO. B58 | TOTAL SHEETS B139 |
|-----------------------|-----------------------------------|-------------------------|-----------------------------|

Plotting Date: 12/01/2022 Rev 5/08/2023 KKW

Sec 14 -T98N - R50W

HENKE'S SECOND ADDITION



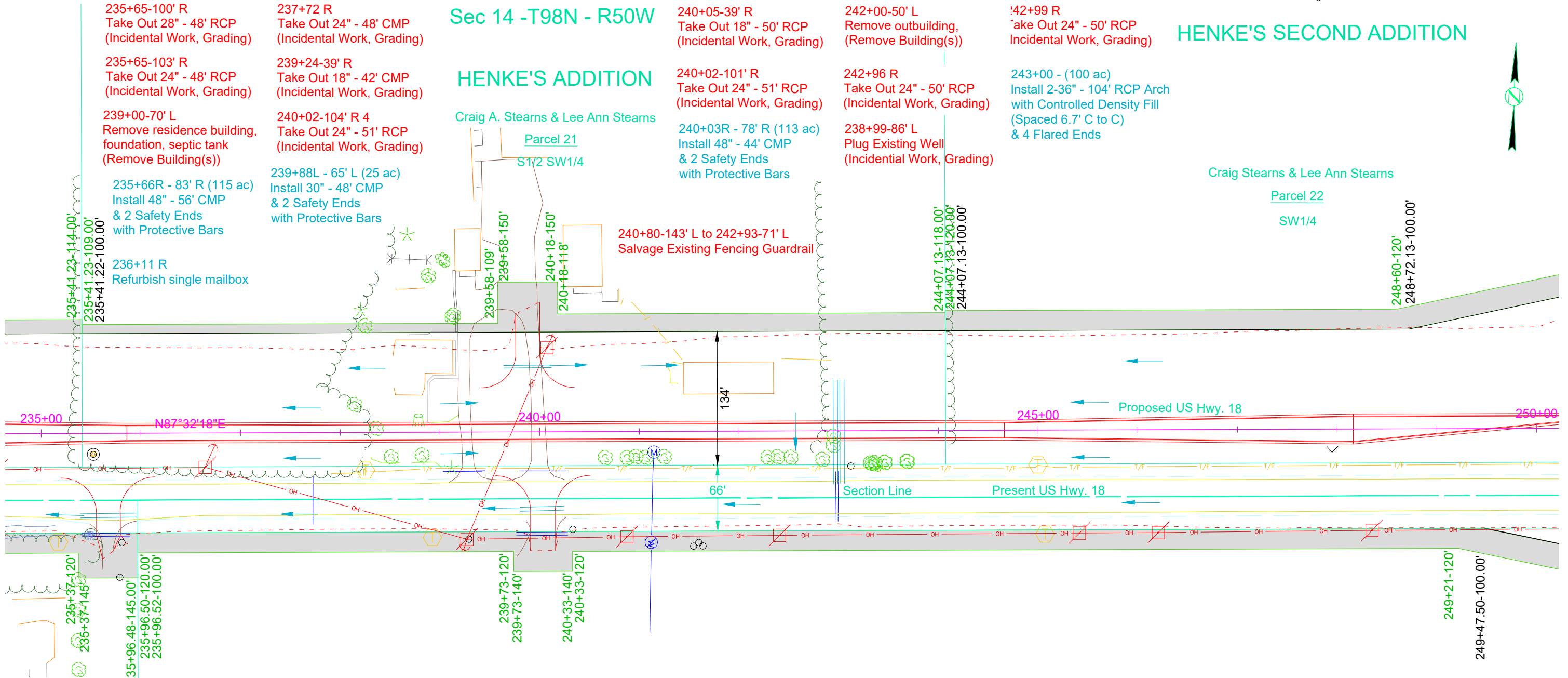
HENKE'S ADDITION

Craig A. Stearns & Lee Ann Stearns

Parcel 21
S1/2 SW1/4

Craig Stearns & Lee Ann Stearns

Parcel 22
SW1/4



David L. Danielson & Ethelyn J. Fossum

Parcel 23
NW1/4

DANIELSON ADDITION

- 235+30-100' L to 238+23-120' L Do Not Disturb Trees
- 238+26-107' L Do Not Disturb Tree
- 239+13-115' L Do Not Disturb Tree
- 242+80-100' L to 244+13-120' L Do Not Disturb Trees

- Parcel 21
235+41.23 to 244+07.13 L
Temporary Easement containing 0.3 ac, more or less
- Parcel 22
244+07.13 to 251+89.48 L
Temporary Easement containing 0.4 ac, more or less
- Parcel 23
235+96.50 to 251+87.88 R
Temporary Easement containing 0.8 ac, more or less

Sec 23 -T98N - R50W



US HWY 18 PLAN VIEW

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| STATE OF SOUTH DAKOTA | PROJECT NH 0018(157)438 | SHEET NO. B66 | TOTAL SHEETS B139 |
|-----------------------|-----------------------------------|------------------|----------------------|

Plotting Date: 12/01/2022 Rev 5/08/2023 KKW

Sec 13 -T98N - R50W

Conrad L. Baker and Linda K. Baker

Parcel 28

297+02-99' L
Take Out 18" - 50' RCP
(Incidental Work, Grading)

301+32L - 69' L (9 ac)
Install 24" - 76' CMP
& 2 Safety Ends

307+57L - 115' L (21 ac)
Install 18" - 64' CMP
& 2 Safety Ends

301+31-104' L
Salvage 18" - 61' CMP
Place on Parcel A12 Property
(Incidental Work, Grading)

304+06L - 73' L (19 ac)
Install 24" - 68' CMP
& 2 Safety Ends

308+17R - 116' R (2 ac)
Install 18" - 48' CMP
& 2 Safety Ends

304+04-104'
Take Out 15" -97' RCP
(Incidental Work, Grading)

307+58-L
1 - 40' Barbed
Wire Gate

Roger Reiners
Parcel 31
SE1/4

PI 304+88.11
N 373825.07
E 2936011.07
Del 0°10'20" R

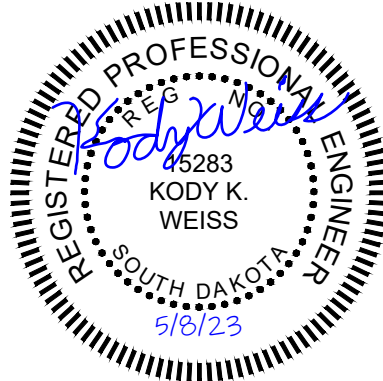
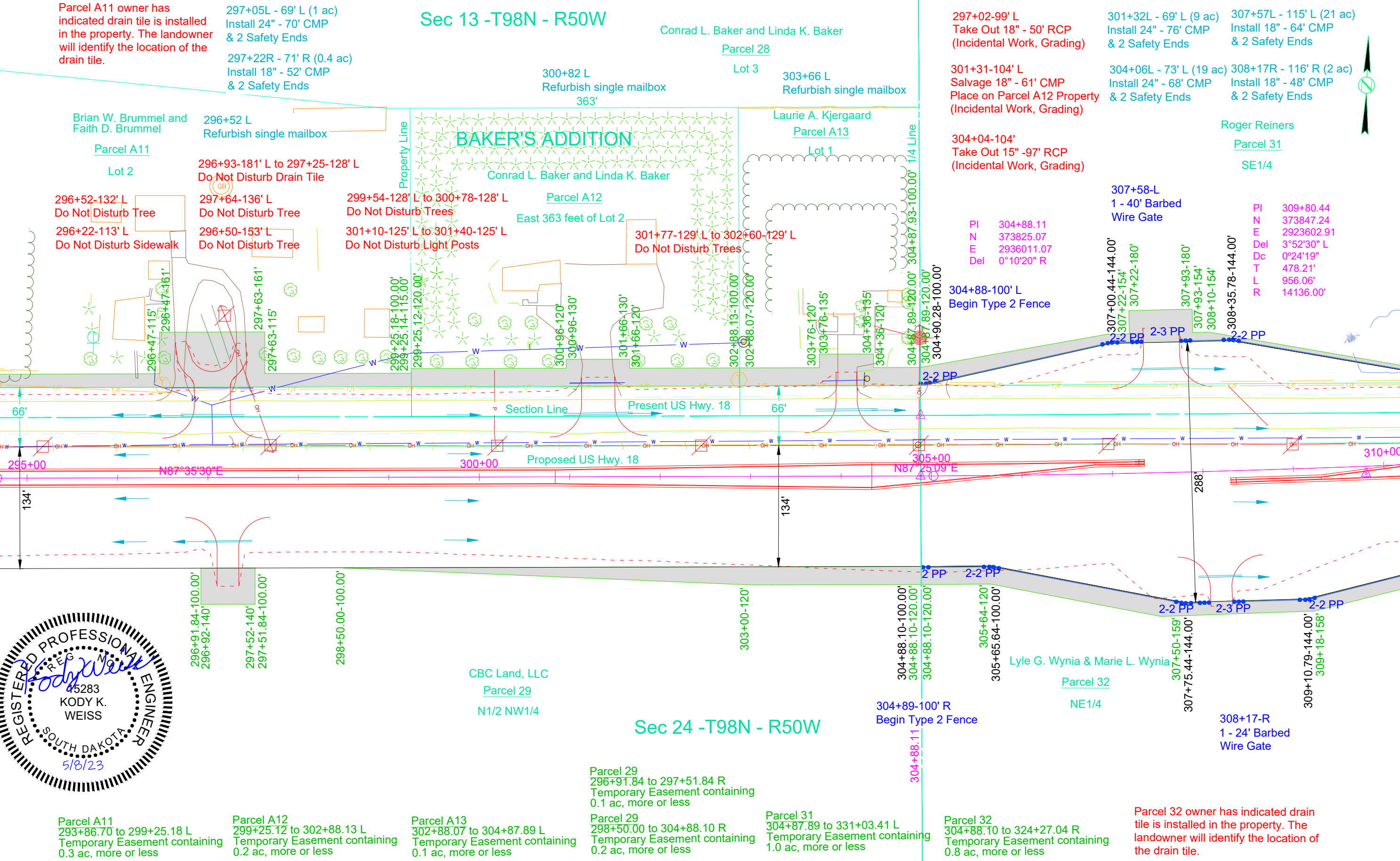
PI 309+80.44
N 373847.24
E 2923602.91
Del 3°52'30" L
Dc 0°24'19"
T 478.21'
L 956.06'
R 14136.00'

304+88-100' L
Begin Type 2 Fence

307+00.44-144.00'
307+22-154'
307+22-180'
307+93-180'
307+93-154'
308+10-154'
308+35.78-144.00'

304+88-100' L
Begin Type 2 Fence

2-2 PP
2-3 PP
2-2 PP



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Parcel A11
293+86.70 to 299+25.18 L
Temporary Easement containing
0.3 ac, more or less

Parcel A12
299+25.12 to 302+88.13 L
Temporary Easement containing
0.2 ac, more or less

Parcel A13
302+88.07 to 304+87.89 L
Temporary Easement containing
0.1 ac, more or less

Parcel 29
296+91.84 to 297+51.84 R
Temporary Easement containing
0.1 ac, more or less

Parcel 29
298+50.00 to 304+88.10 R
Temporary Easement containing
0.2 ac, more or less

Parcel 31
304+87.89 to 331+03.41 L
Temporary Easement containing
1.0 ac, more or less

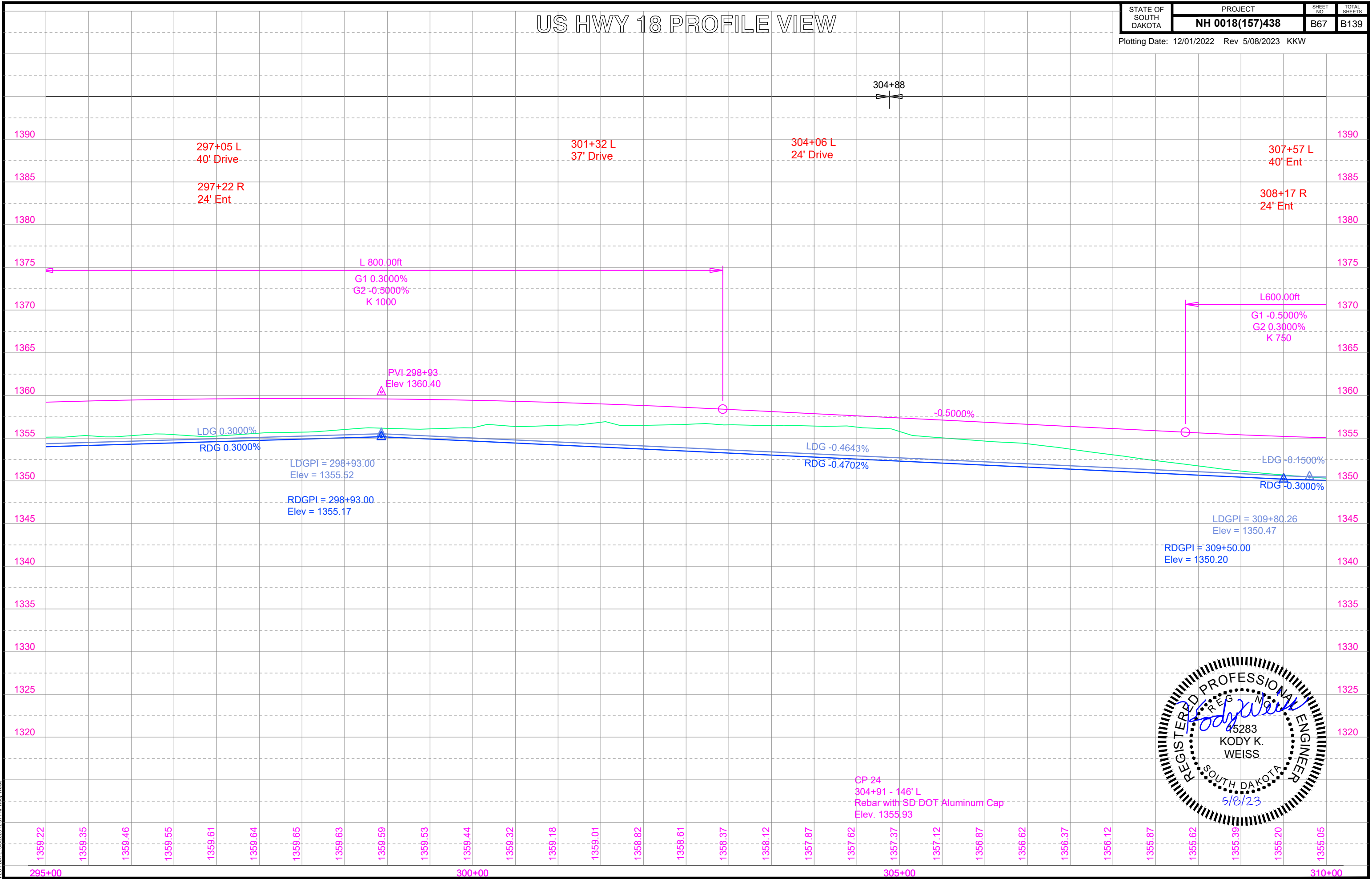
Parcel 32
304+88.10 to 324+27.04 R
Temporary Easement containing
0.8 ac, more or less

Parcel 32 owner has indicated drain
tile is installed in the property. The
landowner will identify the location of
the drain tile.

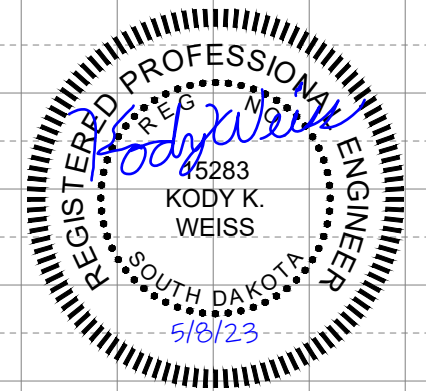
US HWY 18 PROFILE VIEW

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| STATE OF SOUTH DAKOTA | PROJECT NH 0018(157)438 | SHEET NO. B67 | TOTAL SHEETS B139 |
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Plotting Date: 12/01/2022 Rev 5/08/2023 KKW



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US HWY 18 PLAN VIEW

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| STATE OF SOUTH DAKOTA | PROJECT NH 0018(157)438 | SHEET NO. B68 | TOTAL SHEETS B139 |
|-----------------------|-----------------------------------|-------------------------|-----------------------------|

Plotting Date: 12/01/2022 Rev 5/08/2023 KKW

Sec 13 -T98N - R50W

311+37
Take Out 24" - 44' RCP
(Incidental Work, Grading)

311+25 - (29ac)
Install 30" - 116' RCP Arch
& 2 Sloped Ends

322+18 - 47' L
Install 2' x 3' Type B Inlet
and Type B Frame and Grate

322+09L - 47' L (0.4 ac)
Install 18" - 20' RCP
& 1 Flared End

321+58
Take Out 30" - 64' RCP
(Incidental Work, Grading)

321+64
Take Out 36" - 65' RCP
(Incidental Work, Grading)

321+46 - (114 ac)
Install 2-48" - 106' RCP Arch
with Controlled Density Fill
(Spaced 7.3' C to C)
& 4 Flared Ends

323+83-30' L
Take Out 15" - 46' RCP
(Incidental Work, Grading)

323+72-30' L
Take Out 15" - 38' RCP
(Incidental Work, Grading)

323+74R - 76' R (2 ac)
Install 18" - 48' CMP
& 2 Safety Ends

323+65 L
Refurbish single mailbox

323+89-L
2 - 12' Steel
Tubing Gates

323+75-75' L
End Type 2 Fence

324+01-75' L
Begin Type 2 Fence

323+69-82' L
Do Not Disturb Trees

320+65-100' L to 322+08-126' L
Do Not Disturb Trees

322+09.20-100.00'
322+09.20-75.00'

322+29-95'
322+29-110'

323+58-95'
323+58-120'

324+17-120'
324+17-95'

Roger Reiners
Parcel 31
SE1/4

Lyle G. Wynia & Marie L. Wynia
Parcel 32
NE1/4

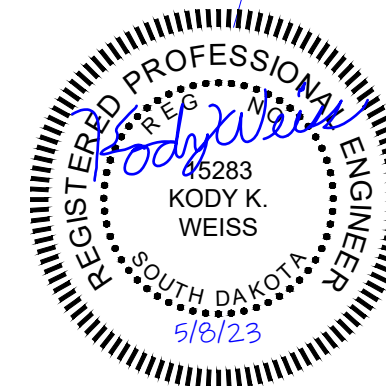
PI 319+71.47
N 373958.71
E 2937488.01
Del 3°52'30" R
Dc 0°24'19"
T 478.21'
L 956.06'
R 14136.00'

323+75-R
1 - 24' Barbed
Wire Gate

324+27-100' R
End Type 2 Fence
324+27-100' R
Begin Type 2 Fence

324+08-100' R to 324+27-120' R
Do Not Disturb Trees
324+26-75' R to 324+51-100' R
Do Not Disturb Trees

Sec 24 -T98N - R50W



S:\0-2019 Projects\19008 - SDDOT US18 Grading & Interim Surfacing Design\CAD SHEETS\B-PLAN\PROFILE-2.dwg PLOT DATE: 5/8/2023 12:51 PM Kody Weiss

US HWY 18 PROFILE VIEW

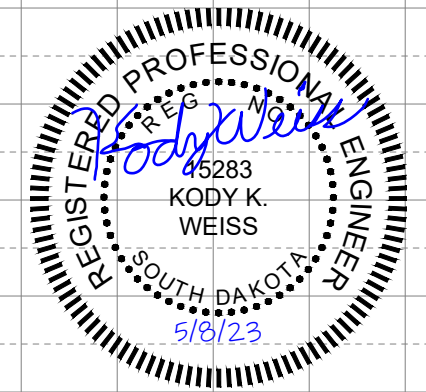
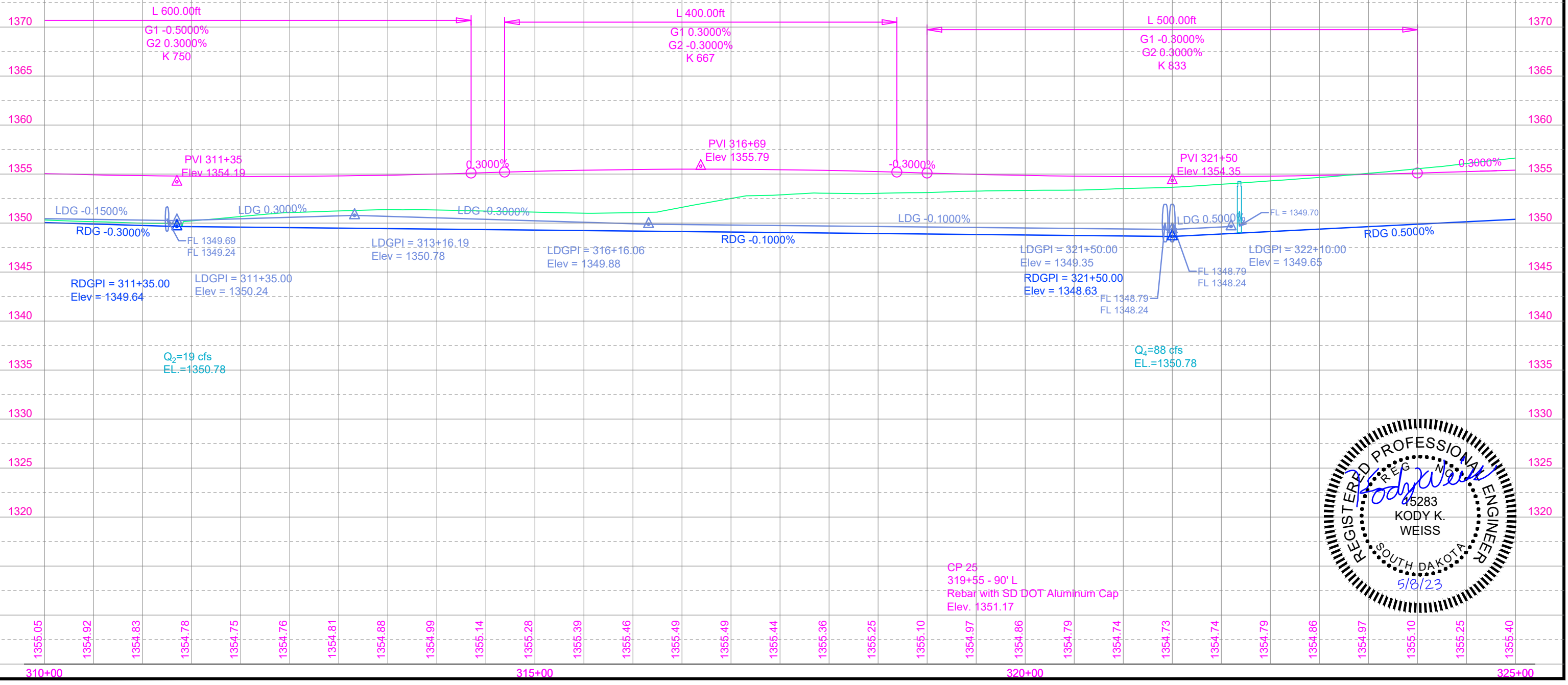
| | |
|--------------------------------|-------------------------------|
| Excavation 20,030 | Embankment 16,739 |
| Undercut 23,458 | 30% 5,022 21,761 |
| Muck 0 | Undercut 23,458 |
| Option Borrow 0 | 30% 7,037 30,495 |
| Out of Balance Ecavation 8,768 | Waste 0 0 |
| 52,256 | Out of Balance Excavation 0 0 |
| | 52,256 |

| |
|-------------------------------------|
| Haul 265,300 CuYdSta |
| Dead Haul 0 CuYdSta |
| Option Borrow Haul 0 CuYdSta |
| Out-of-Balance Haul 464,700 CuYdSta |

Included in the Exc Quantity is 1,425 CY of Unstable Material Excavation
Waste is Muck Exc to be disposed of at a site approved by the Engineer
Borrow is to be Obtained from Borrow Pit "A"

323+87 L
24' Drive

323+74 R
24' Ent



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PLOT DATE: 5/8/2023 12:52 PM Kody Weiss

US HWY 18 PLAN VIEW

| | | | |
|---|-----------------------------------|------------------|----------------------|
| STATE OF SOUTH DAKOTA | PROJECT NH 0018(157)438 | SHEET NO. B70 | TOTAL SHEETS B139 |
| Plotting Date: 12/01/2022 Rev 5/08/2023 KKW | | | |

Sec 13 -T98N - R50W

331+37 L&Ah - 176' L (0.8 ac)
Install 18" - 72' CMP
Install 18" - 6' CMP
And 1 - 45.0 Degree Elbow
& 2 Safety Ends

Roger Reiners
Parcel 31
SE1/4

Sec 18 -T98N - R49W

331+36L - 84' L (22 ac)
Install 24" - 80' RCP
& 2 Safety Ends

Parcel 33 owner has indicated drain tile is installed in the property. The landowner will identify the location of the drain tile.

Parcel 35 owner has indicated drain tile is installed in the property. The landowner will identify the location of the drain tile.



331+69-174' L
Begin Type 6 Fence

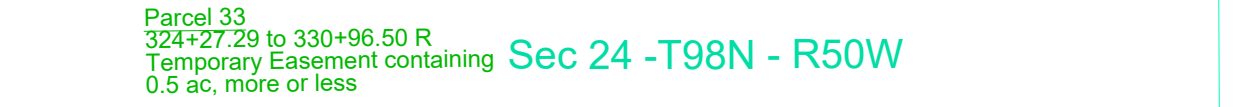
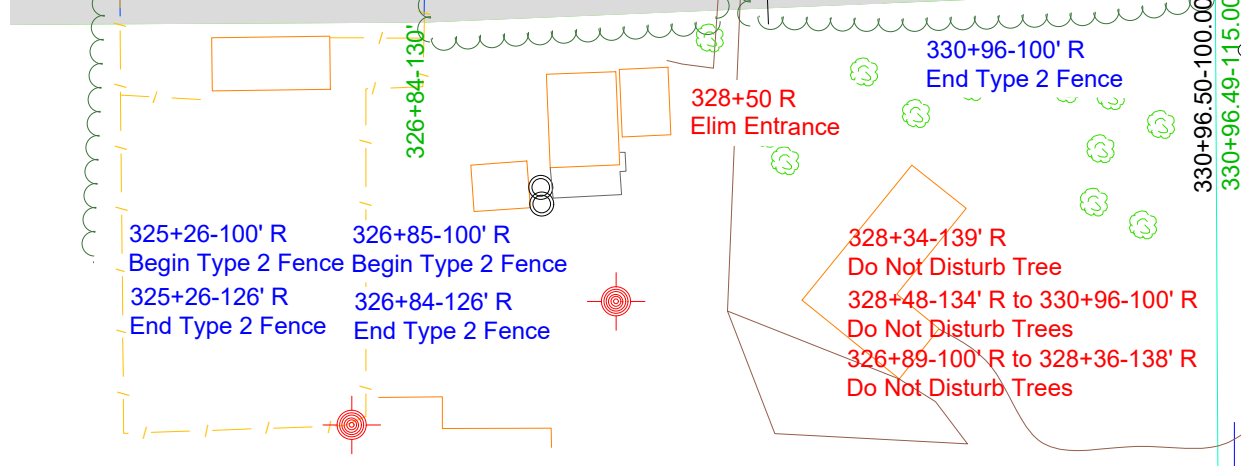
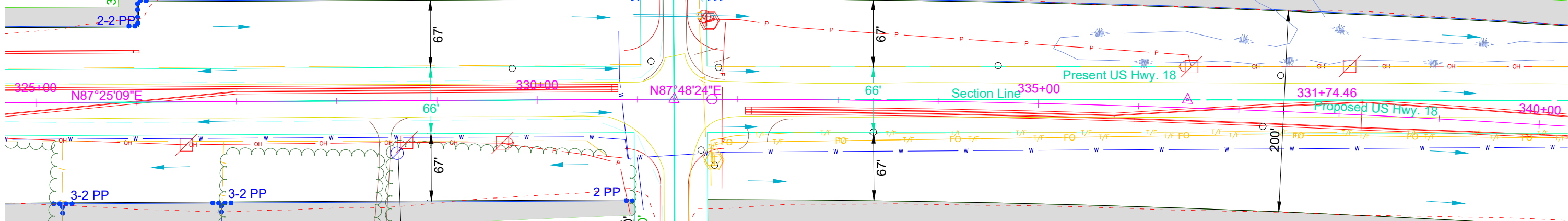
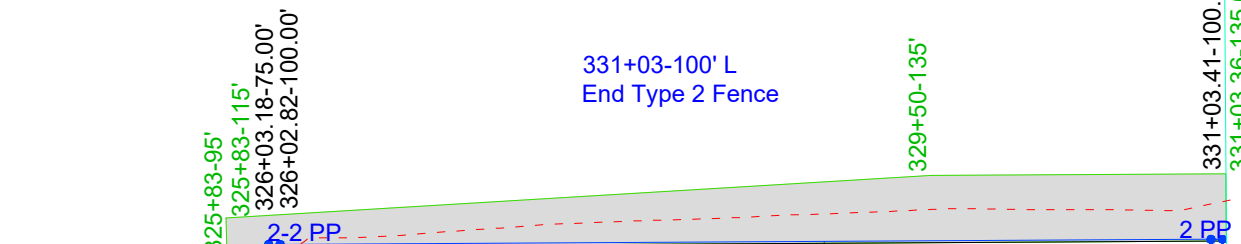
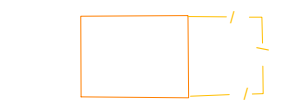
331+69-L
1 - 40' Barbed Wire Gate
331+69-101' L
End Type 6 Fence
331+69-100' L
Begin Type 6 Fence

PI 331+36.55
N 374011.19
E 2938652.27
Del 0°23'15" R

Twila M. Perkinson, Lisa M. Baier & Ryan E. Vandemore

Parcel 34
Government Lot 2

PI 336+48.70
N 374030.79
E 2939164.05
Del 3°50'34" R
Dc 0°24'19"
T 474.24'
L 948.12'
R 14136.00'



Section Line
331+03.41-100.00'
331+03.36-135.00'
331+68.20-165.00'
331+68.73-100.00'
332+33-165'
332+33-125'
331+70.50-145.00'
331+91-145'
331+91-125'
331+70.20-100.00'
331+36.55
Lincoln County Hwy 125

Parcel 33
324+27.29 to 330+96.50 R
Temporary Easement containing 0.5 ac, more or less

Sec 24 -T98N - R50W

Lyle G. Wynia & Marie L. Wynia
Parcel 33
Tract 1

ENEBOE'S ADDITION

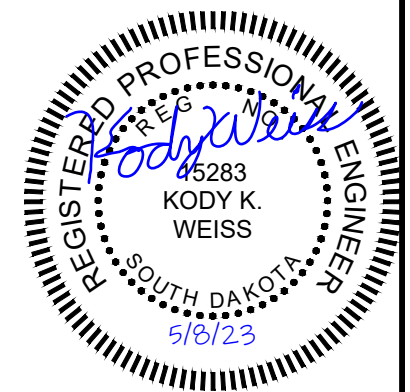
328+34-139' R
Do Not Disturb Tree
328+48-134' R to 330+96-100' R
Do Not Disturb Trees
326+89-100' R to 328+36-138' R
Do Not Disturb Trees

Parcel 34
331+68.20 to 336+24.79 L
Temporary Easement containing 1.3 ac, more or less

Parcel 35
331+70.20 to 344+16.30 R
Temporary Easement containing 0.7 ac, more or less

Pederson Ag, LLC
Parcel 35
Government Lot 2

Sec 19 -T98N - R49W



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US HWY 18 PLAN VIEW

| | | | |
|---|-----------------------------------|-------------------------|-----------------------------|
| STATE OF SOUTH DAKOTA | PROJECT NH 0018(157)438 | SHEET NO. B74 | TOTAL SHEETS B139 |
| Plotting Date: 12/01/2022 Rev 5/08/2023 KKW | | | |

Sec 18 -T98N - R49W

HURLEY'S ADDITION

Dakota Legacy Livestock, LLC

Parcel A14

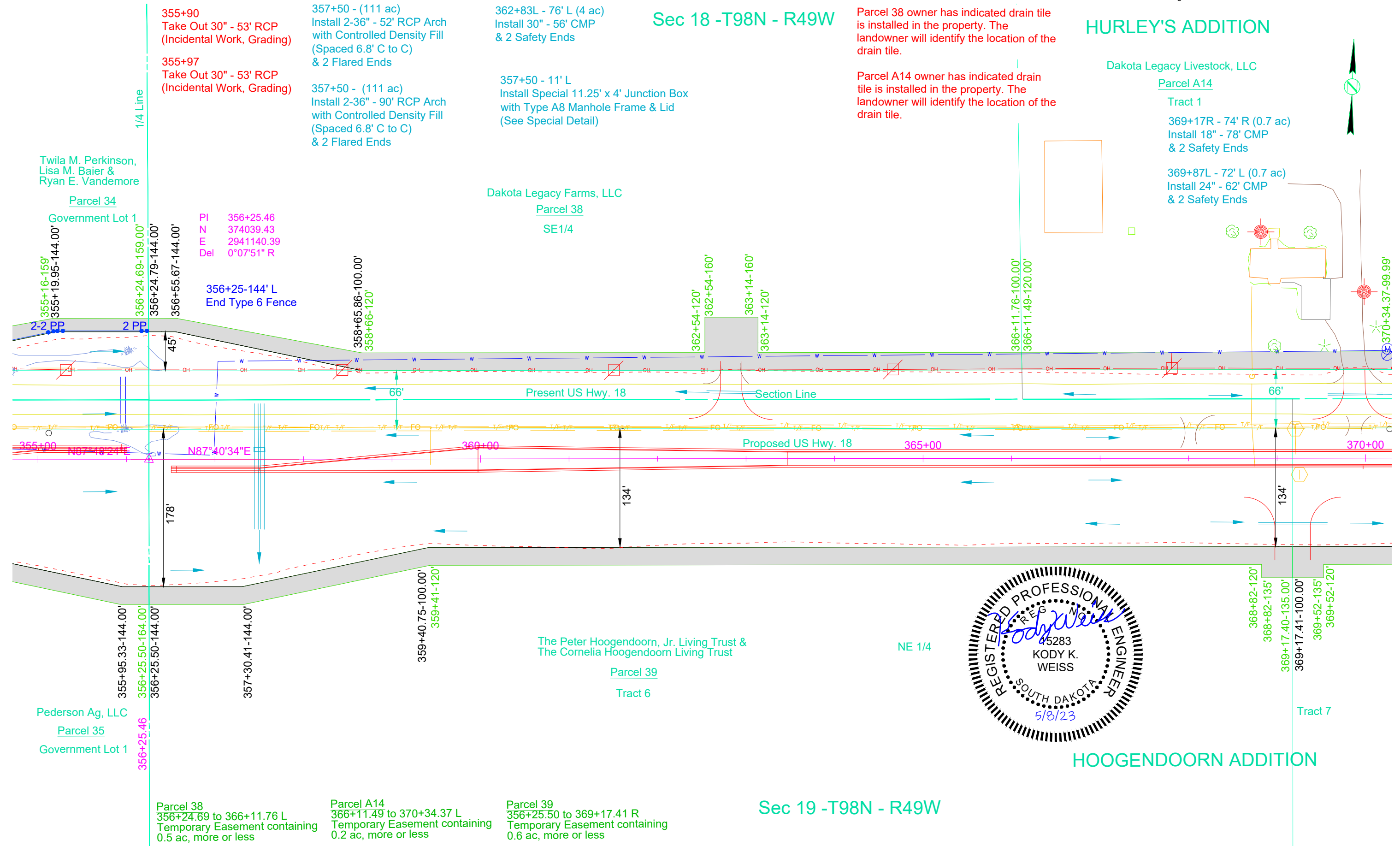
Tract 1

369+17R - 74' R (0.7 ac)
Install 18" - 78' CMP
& 2 Safety Ends

369+87L - 72' L (0.7 ac)
Install 24" - 62' CMP
& 2 Safety Ends

Parcel 38 owner has indicated drain tile is installed in the property. The landowner will identify the location of the drain tile.

Parcel A14 owner has indicated drain tile is installed in the property. The landowner will identify the location of the drain tile.



HOOGENDOORN ADDITION

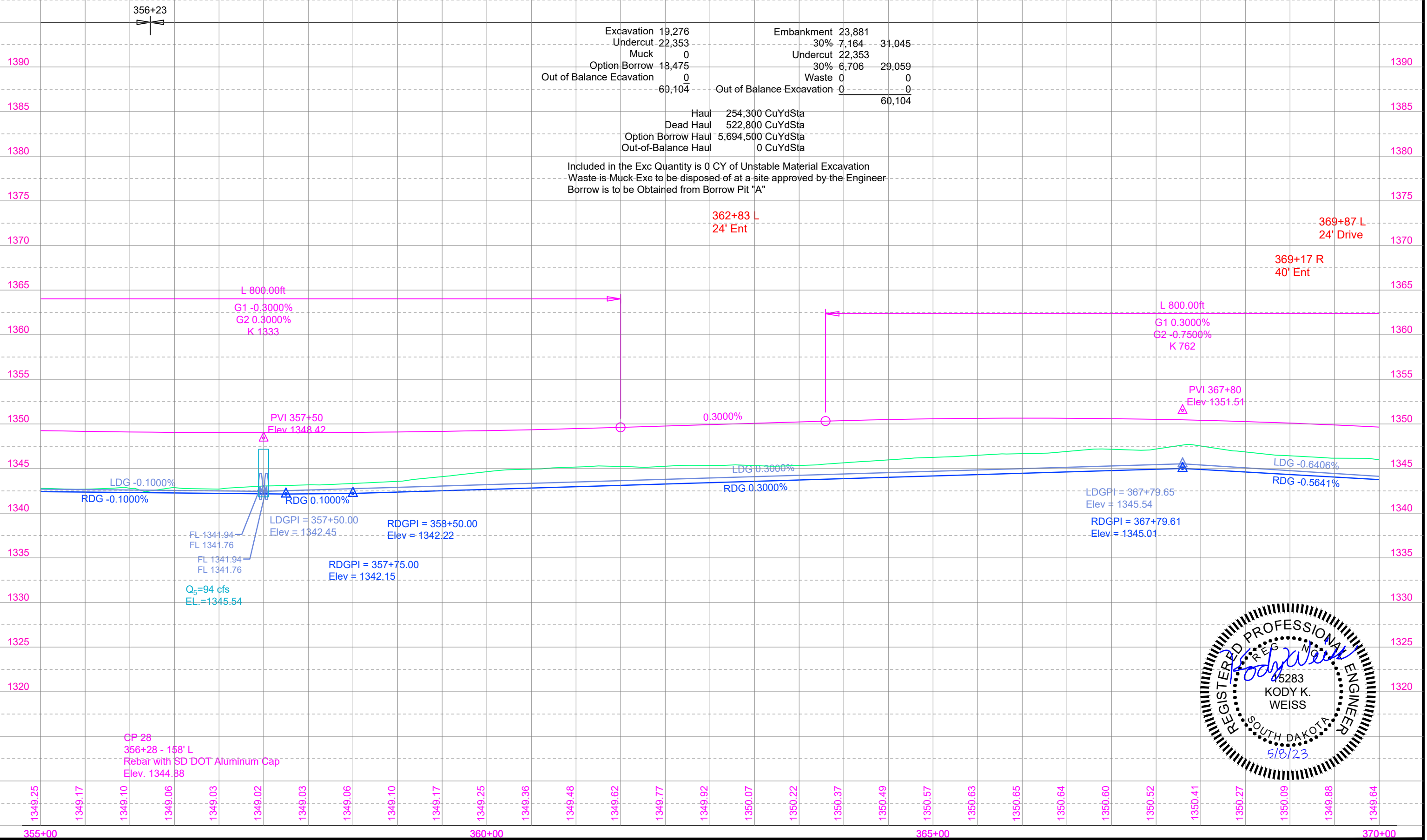
Sec 19 -T98N - R49W

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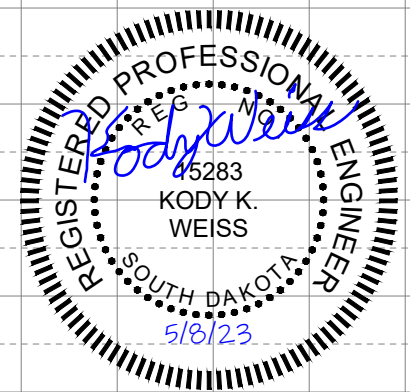
US HWY 18 PROFILE VIEW

| | | | |
|---------------------------|-------------------|---------------------------|--------|
| Excavation | 19,276 | Embankment | 23,881 |
| Undercut | 22,353 | 30% | 7,164 |
| Muck | 0 | Undercut | 22,353 |
| Option Borrow | 18,475 | 30% | 6,706 |
| Out of Balance Excavation | 0 | Waste | 0 |
| | 60,104 | Out of Balance Excavation | 0 |
| | | | 60,104 |
| Haul | 254,300 CuYdSta | | |
| Dead Haul | 522,800 CuYdSta | | |
| Option Borrow Haul | 5,694,500 CuYdSta | | |
| Out-of-Balance Haul | 0 CuYdSta | | |

Included in the Exc Quantity is 0 CY of Unstable Material Excavation
Waste is Muck Exc to be disposed of at a site approved by the Engineer
Borrow is to be Obtained from Borrow Pit "A"



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PLOT DATE: 5/8/2023 1:08 PM Kody Weiss



CP 28
356+28 - 158' L
Rebar with SD DOT Aluminum Cap
Elev. 1344.88

US HWY 18 PLAN VIEW

| | | | |
|-----------------------|-----------------------------------|------------------|----------------------|
| STATE OF SOUTH DAKOTA | PROJECT NH 0018(157)438 | SHEET NO. B76 | TOTAL SHEETS B139 |
|-----------------------|-----------------------------------|------------------|----------------------|

Plotting Date: 12/01/2022 Rev 5/08/2023 KKW

Sec 18 -T98N - R49W

382+35 L
Take Out 24" - 63' RCP
(Incidental Work, Grading)

382+41 L
Take Out 24" - 63' RCP
(Incidental Work, Grading)

382+17 - (43 ac)
Install 2-24" - 120' RCP Arch
with Controlled Density Fill
(Spaced 4.6' C of C)
& 4 Sloped Ends

384+11 L
Refurbish single mailbox

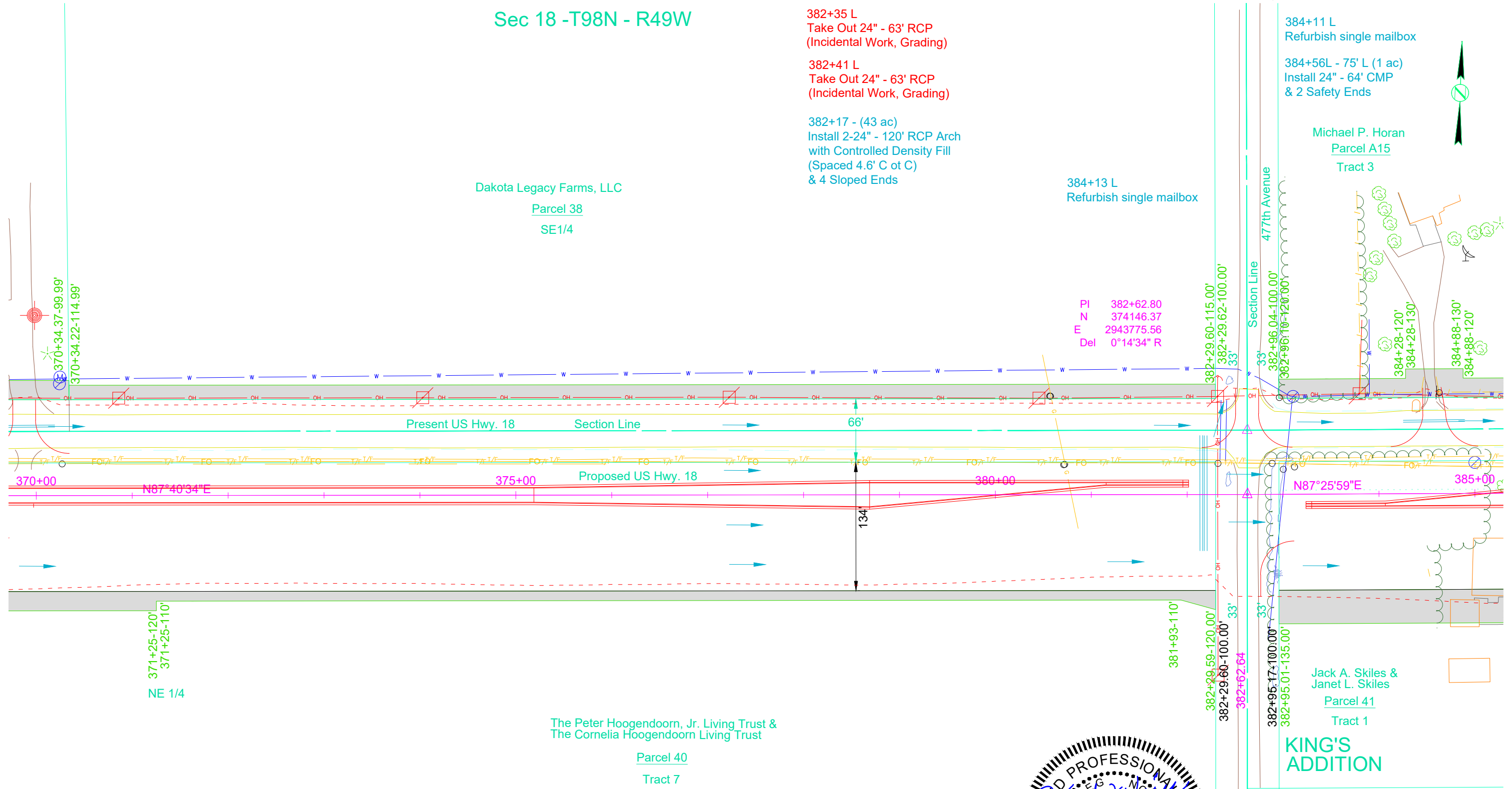
384+56L - 75' L (1 ac)
Install 24" - 64' CMP
& 2 Safety Ends

Dakota Legacy Farms, LLC
Parcel 38
SE1/4

384+13 L
Refurbish single mailbox

Michael P. Horan
Parcel A15
Tract 3

PI 382+62.80
N 374146.37
E 2943775.56
Del 0°14'34" R



HOOGENDOORN ADDITION

Sec 19 -T98N - R49W

Parcel 38
370+34.17 to 382+29.62 L
Temporary Easement containing
0.4 ac, more or less

Parcel 40
369+17.40 to 382+29.60 R
Temporary Easement containing
0.4 ac, more or less

Parcel A15
382+96.04 to 387+91.01 L
Temporary Easement containing
0.2 ac, more or less

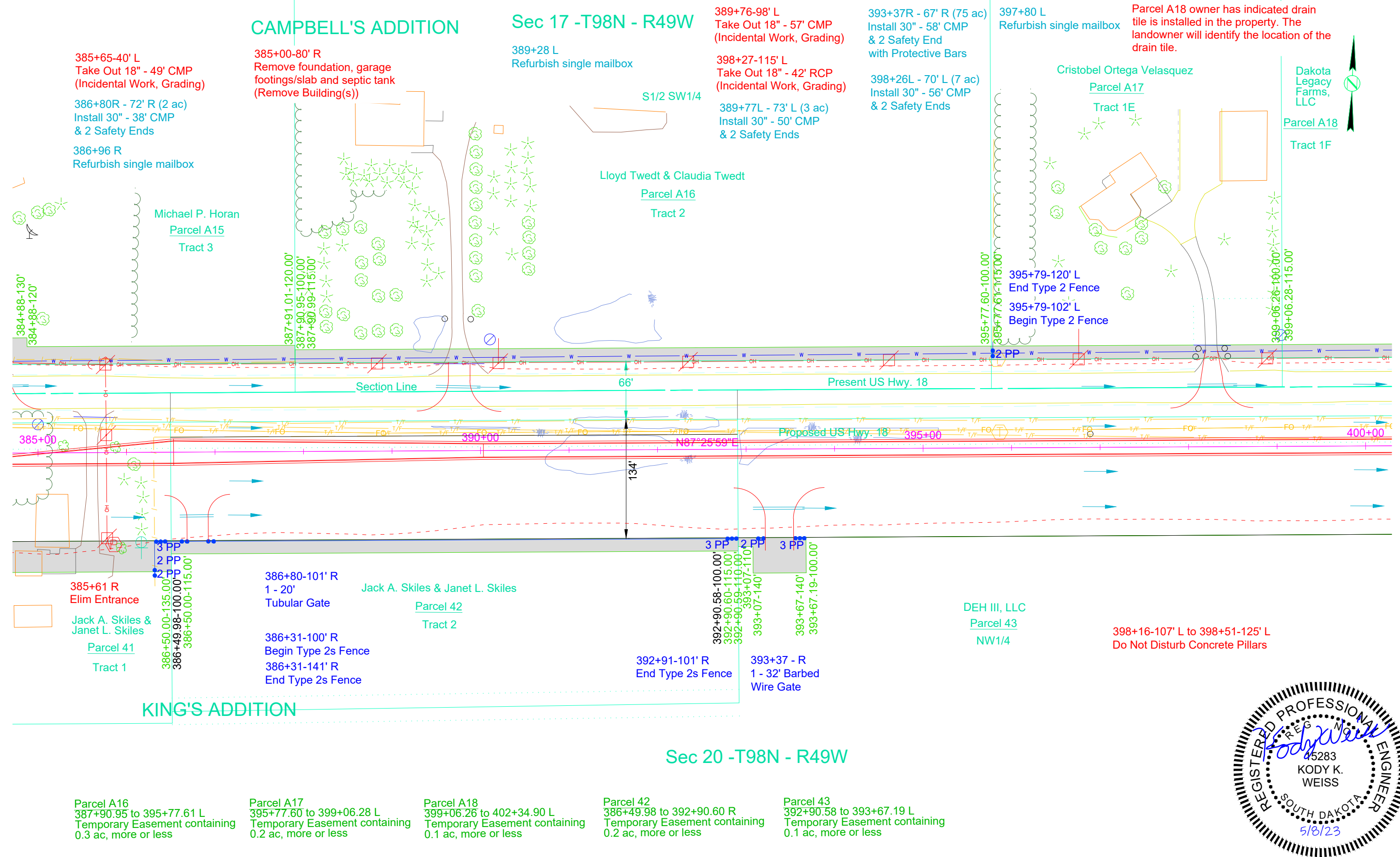
Parcel 41
382+95.01 to 386+50.00 R
Temporary Easement containing
0.3 ac, more or less



US HWY 18 PLAN VIEW

| | | | |
|-----------------------|-----------------------------------|------------------|----------------------|
| STATE OF SOUTH DAKOTA | PROJECT NH 0018(157)438 | SHEET NO. B78 | TOTAL SHEETS B139 |
|-----------------------|-----------------------------------|------------------|----------------------|

Plotting Date: 12/01/2022 Rev 5/08/2023 KKW



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PLOT DATE: 5/8/2023 2:58 PM Kody Weiss



The elevations shown in these plans are based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88).

| | | | |
|----------|-----------------|-----------|--------------|
| STATE OF | PROJECT | SHEET NO. | TOTAL SHEETS |
| S.D. | NH 0018(157)438 | B112 | B139 |

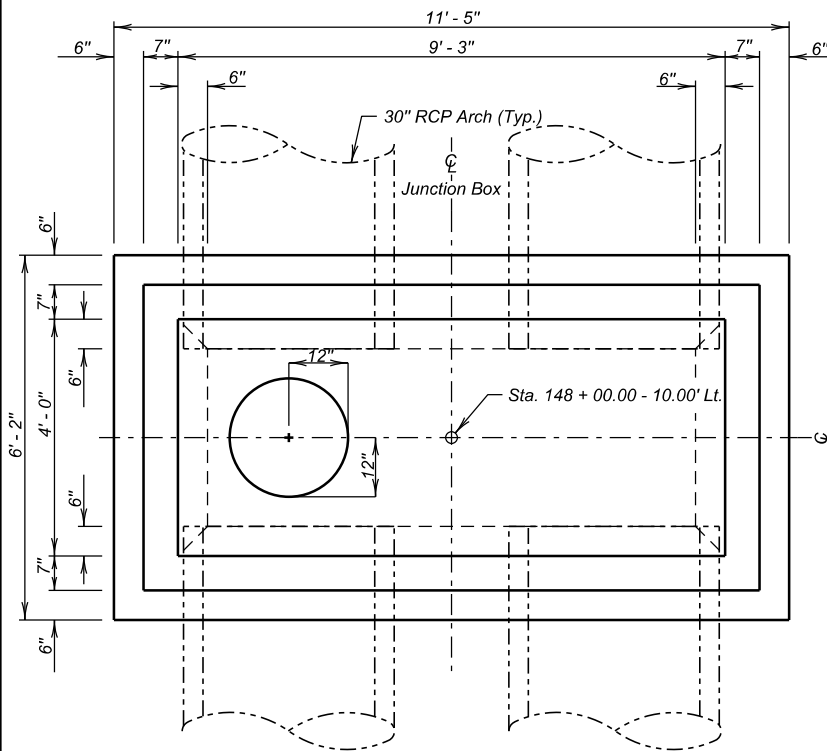
| ESTIMATED QUANTITIES | | |
|-------------------------------|---------|----------|
| ITEM | UNIT | QUANTITY |
| * Class M6 Concrete | Cu. Yd. | 6.3 |
| Reinforcing Steel | Lb. | 1283 |
| Type A8 Manhole Frame and Lid | Each | 1 |

| PIPE DISPLACEMENT REDUCTIONS | | |
|------------------------------|----------------------------|-----------------------------|
| R.C. Pipe Diameter (Inches) | Thickness of Pipe (Inches) | Class M6 Concrete (Cu. Yd.) |
| 30" R.C.P.A. | 4 | 0.16 |

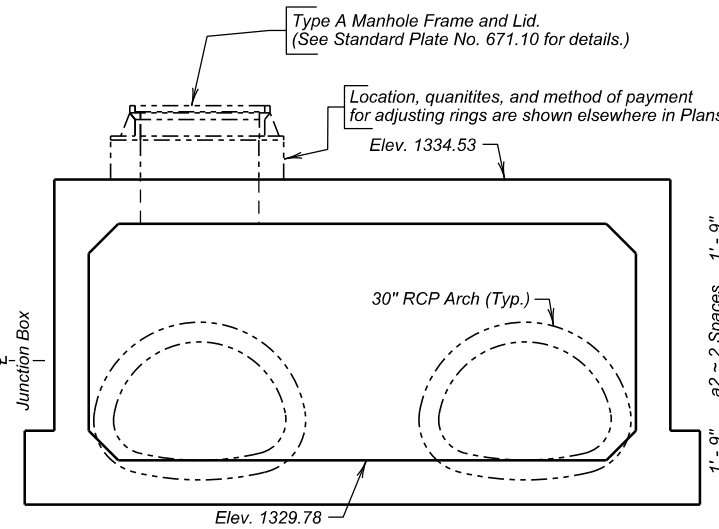
| LEGEND FOR PLACING RE-STEEL | |
|-----------------------------|-------------------------|
| T.T.S. | - Top of Top Slab |
| B.T.S. | - Bottom of Top Slab |
| T.B.S. | - Top of Bottom Slab |
| B.B.S. | - Bottom of Bottom Slab |
| O.F.W. | - Outside Face of Wall |
| I.F.W. | - Inside Face of Wall |

| REINFORCING SCHEDULE | | | | | |
|----------------------|-----|------|----------|------|-----------------|
| Mk. | No. | Size | Length | Type | Bending Details |
| a1 | 1 | 6 | 9' - 0" | T3 | |
| a2 | 3 | - | - | - | |
| h1 | 38 | 4 | 5' - 9" | 17A | |
| k1 | 68 | 4 | 9' - 6" | 17 | |
| m1 | 8 | 5 | 11' - 3" | Str. | |
| m2 | 18 | 5 | 6' - 0" | Str. | |
| n1 | 8 | 5 | 10' - 0" | Str. | |
| n2 | 18 | 5 | 5' - 0" | Str. | |
| p1 | 28 | 4 | 9' - 3" | Str. | |
| p2 | 40 | 4 | 4' - 0" | Str. | |
| q | 12 | 4 | 3' - 6" | 17A | |

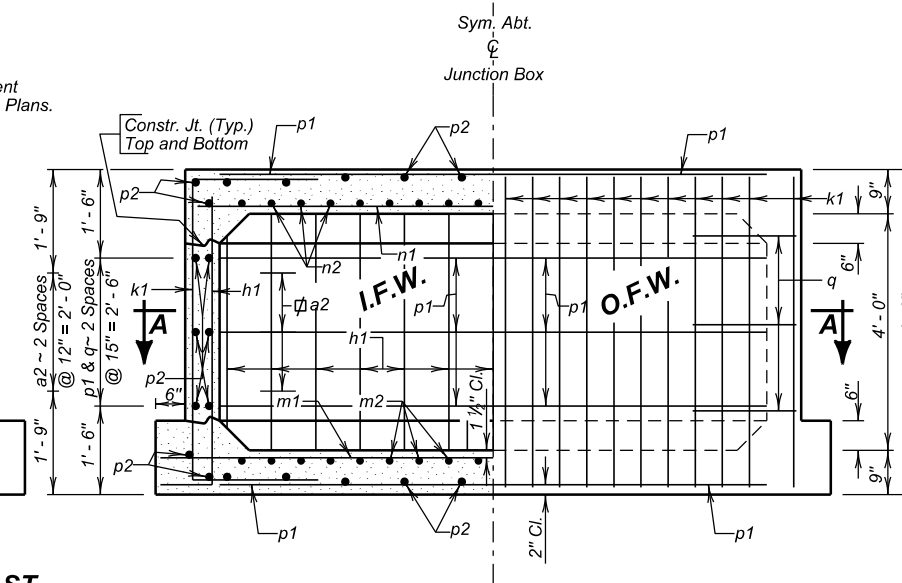
NOTES:
 All dimensions are out to out of bars.
 * Locate in center of top slab with 3" clearance at the manhole opening.
 □ Cast Iron Manhole Steps (R-1980-C) from Neenah Foundry or equivalent.



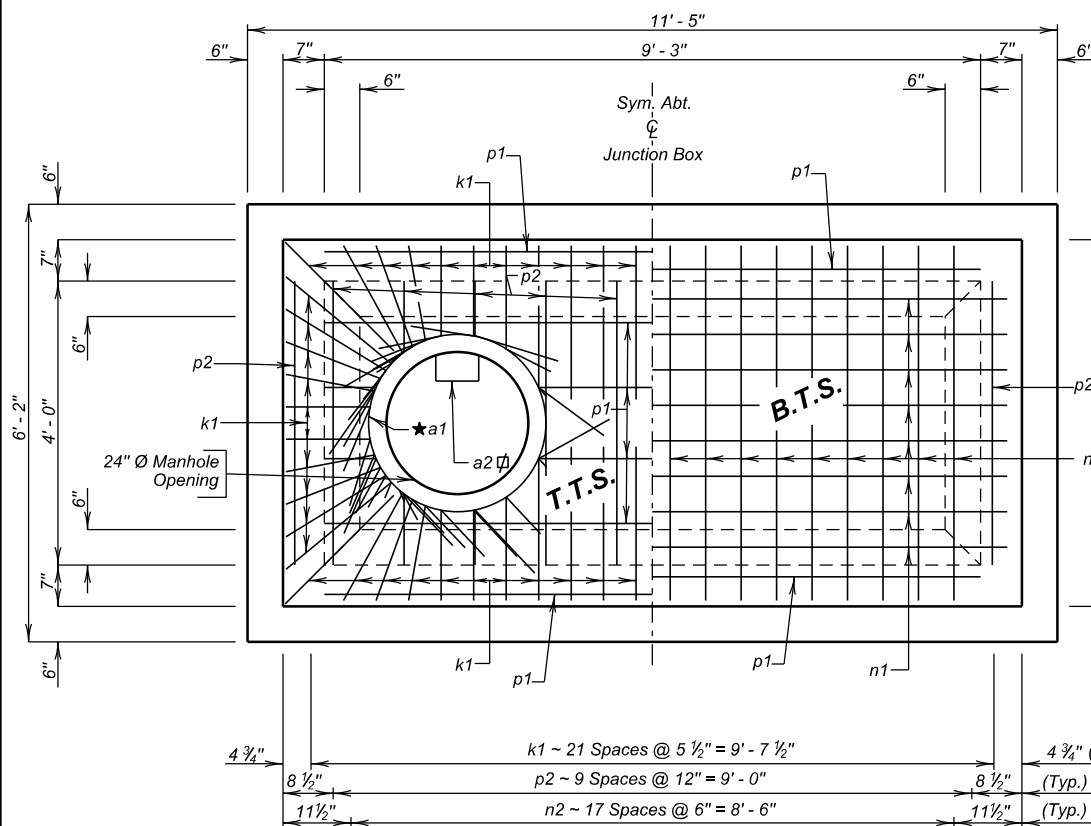
PLAN



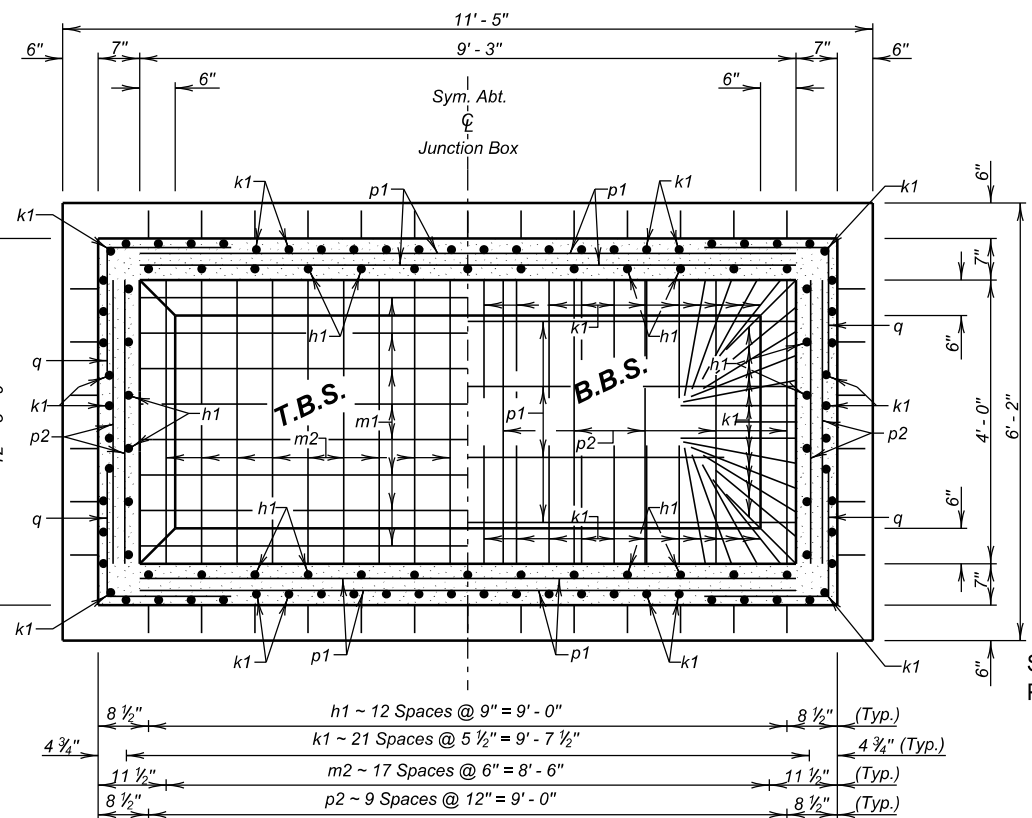
DETAIL OF CONNECTION BETWEEN PRECAST ECCENTRIC MANHOLE COVER, PRECAST PIPE SECTION, AND JUNCTION BOX



ELEVATION



PLAN



SECTION A - A

SPECIFICATIONS

- Design Specifications: AASHTO LRFD Bridge Design Specifications, 8th Edition.
- Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 2015 Edition and required Provisions, Supplemental Specifications, and Special Provisions as included in the Proposal.

GENERAL NOTES

- Design Live Load: HL-93. No construction loading in excess of legal load was considered.
- The design of the Junction Box is based on a maximum fill over the Junction Box of 5 feet and minimum fill over the Junction Box is 1 feet.
- Reinforcing steel will conform to ASTM A615 Grade 60. Cut and bend reinforcing steel as required to place pipe(s) thru junction box wall.
- Junction Box may be precast. If precast, submit a checked design (done by a South Dakota registered P.E.) and shop plans to the Office of Bridge Design for approval.
- Use 1 inch clear cover on all reinforcing steel unless otherwise noted.
- All exposed edges will be chamfered 3/4 inch.
- Junction Box shown may be modified by the addition or omission of connecting pipes as noted elsewhere in the plans. All pipes entering Junction Box must fit between the inside face of walls.
- The cost of furnishing and installing the manhole steps will be incidental to the contract unit price per Lb. for "Reinforcing Steel".
- * Reduce total quantities of concrete by the amount of concrete displaced by the pipes. The total quantity of concrete will be computed to the nearest hundredth of a cubic yard. The total quantity of reinforcing steel will be computed to the nearest pound.

DETAILS FOR

"SPECIAL" 9' - 3" X 4' JUNCTION BOX

STA. 148 + 00.00 - 10.00' Lt. NH 0212(201)377
 PCN 6923

LINCOLN COUNTY
 S. D. DEPT. OF TRANSPORTATION
 MARCH 2023

The elevations shown in these plans are based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88).

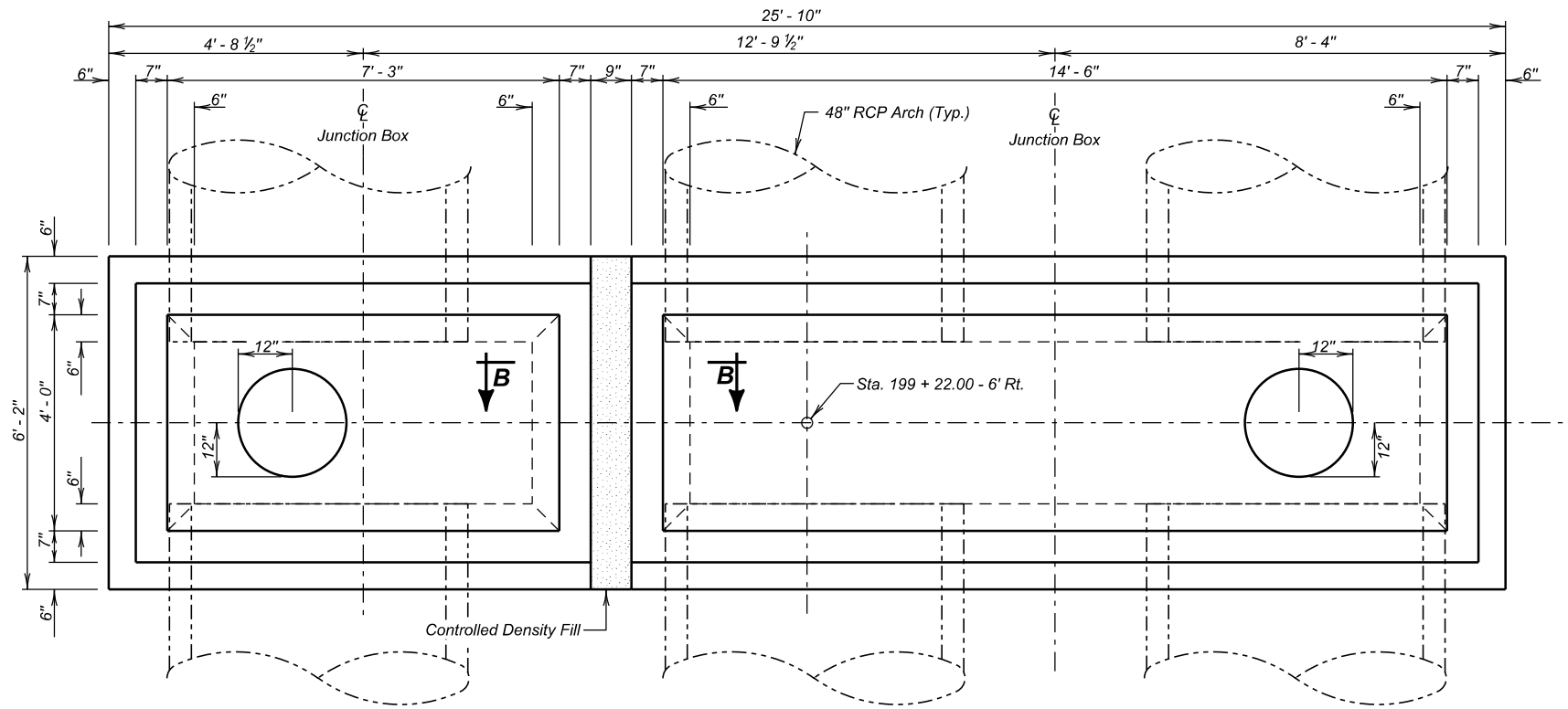
| | | | |
|----------|-----------------|-----------|--------------|
| STATE OF | PROJECT | SHEET NO. | TOTAL SHEETS |
| S.D. | NH 0018(157)438 | B113 | B139 |

SPECIFICATIONS

1. Design Specifications: AASHTO LRFD Bridge Design Specifications, 8th Edition.
2. Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 2015 Edition and required Provisions, Supplemental Specifications, and Special Provisions as included in the Proposal.

GENERAL NOTES

1. Design Live Load: HL-93. No construction loading in excess of legal load was considered.
2. The design of the Junction Box is based on a maximum fill over the Junction Box of 5 feet and minimum fill over the Junction Box is 1 feet.
3. Reinforcing steel will conform to ASTM A615 Grade 60. Cut and bend reinforcing steel as required to place pipe(s) thru junction box wall.
4. Junction Box may be precast. If precast, submit a checked design (done by a South Dakota registered P.E.) and shop plans to the Office of Bridge Design for approval.
5. Use 1 inch clear cover on all reinforcing steel unless otherwise noted.
6. All exposed edges will be chamfered 3/4 inch.
7. Junction Box shown may be modified by the addition or omission of connecting pipes as noted elsewhere in the plans. All pipes entering Junction Box must fit between the inside face of walls.
8. The cost of furnishing and installing the manhole steps will be incidental to the contract unit price per Lb. for "Reinforcing Steel".
- * 9. Reduce total quantities of concrete by the amount of concrete displaced by the pipes. The total quantity of concrete will be computed to the nearest hundredth of a cubic yard. The total quantity of reinforcing steel will be computed to the nearest pound.

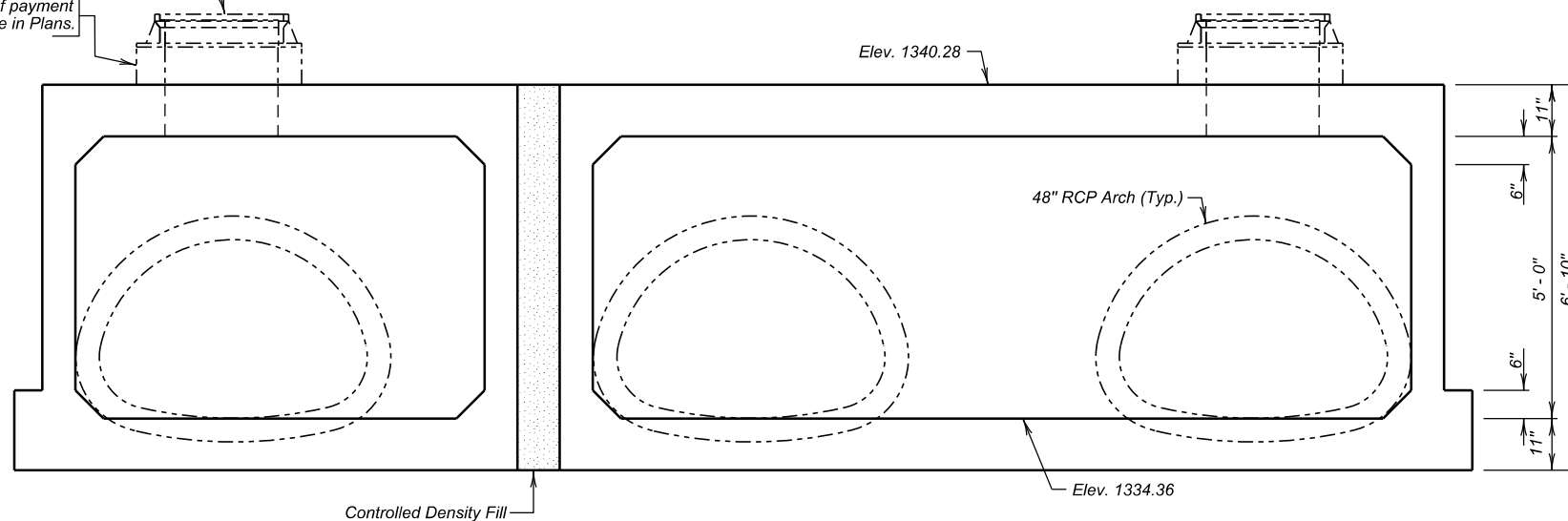


PLAN

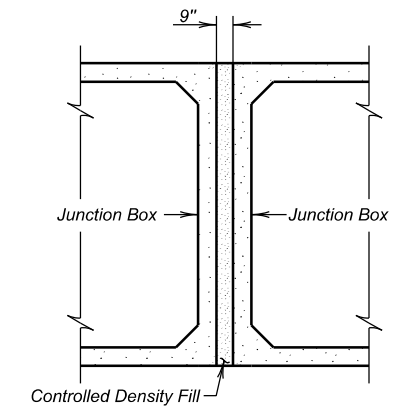
| ESTIMATED QUANTITIES | | |
|-------------------------------|---------|----------|
| ITEM | UNIT | QUANTITY |
| * Class M6 Concrete | Cu. Yd. | 17.3 |
| Reinforcing Steel | Lb. | 3787 |
| Type A8 Manhole Frame and Lid | Each | 2 |
| Controlled Density Fill | Cu. Yd. | 1.2 |

Type A Manhole Frame and Lid.
(See Standard Plate No. 671.10 for details.)

Location, quantities, and method of payment
for adjusting rings are shown elsewhere in Plans.



ELEVATION
(DETAIL OF CONNECTION BETWEEN
PRECAST ECCENTRIC MANHOLE COVER, PRECAST
PIPE SECTION, AND JUNCTION BOX)



SECTION B - B

DETAILS

FOR

"SPECIAL" 7' - 3" X 4' AND
14' - 6" X 4' JUNCTION BOX

STA. 199 + 22.00 - 6' Rt.
PCN 6923

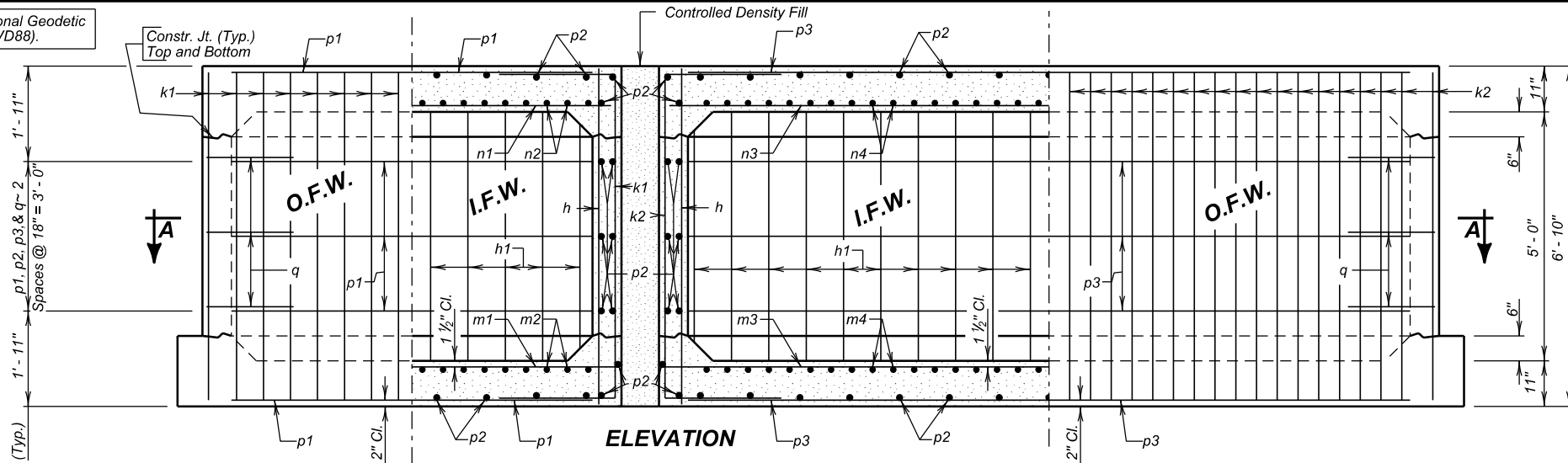
NH 0018(157)438

LINCOLN COUNTY
S. D. DEPT. OF TRANSPORTATION
MARCH 2023

The elevations shown in these plans are based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88).

| | | | |
|----------|-----------------|-----------|--------------|
| STATE OF | PROJECT | SHEET NO. | TOTAL SHEETS |
| S.D. | NH 0018(157)438 | B114 | B139 |

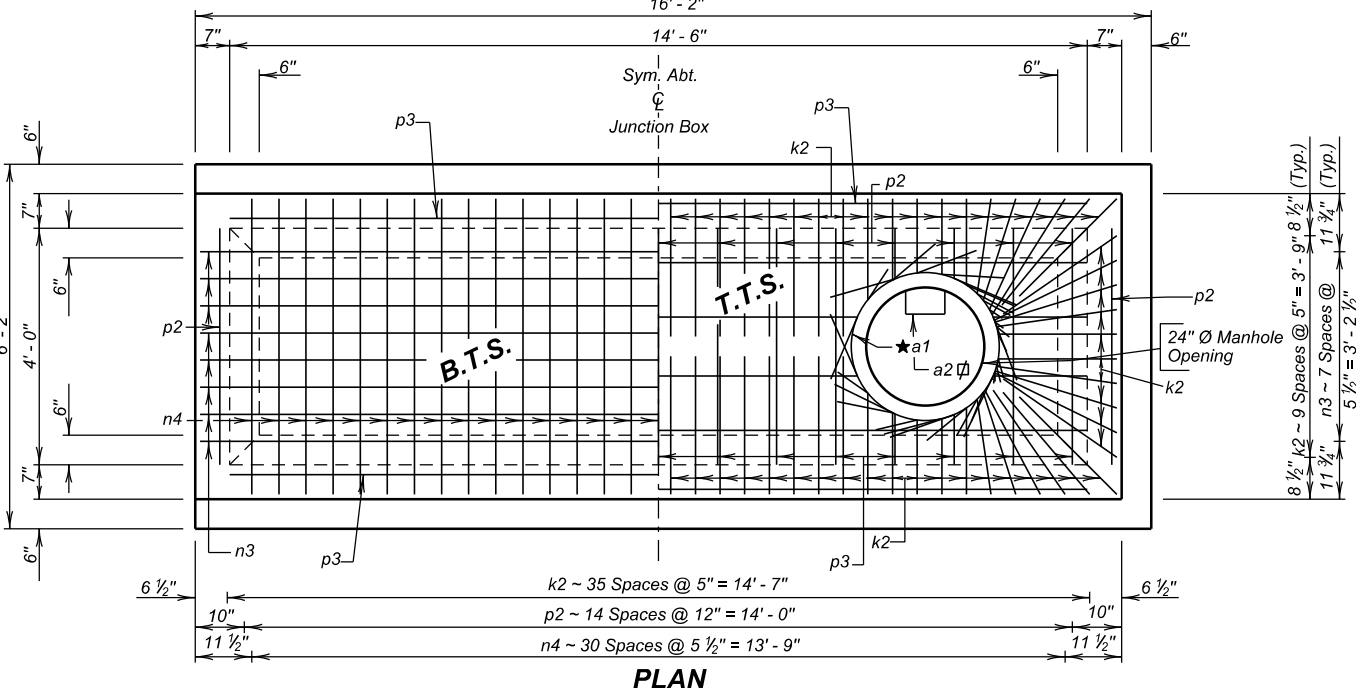
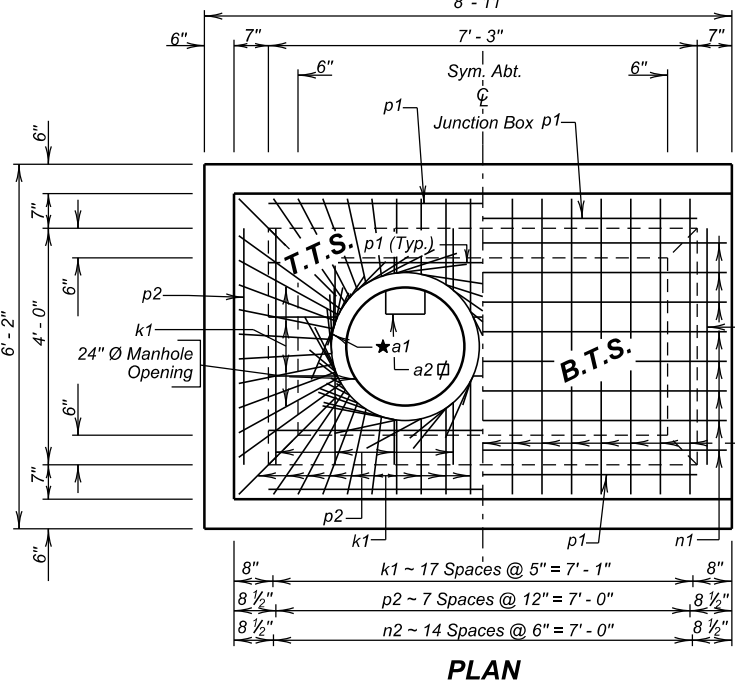
| PIPE DISPLACEMENT REDUCTIONS | | |
|------------------------------|----------------------------|-----------------------------|
| R.C. Pipe Diameter (Inches) | Thickness of Pipe (Inches) | Class M6 Concrete (Cu. Yd.) |
| 48" R.C.P.A. | 5 | 0.38 |



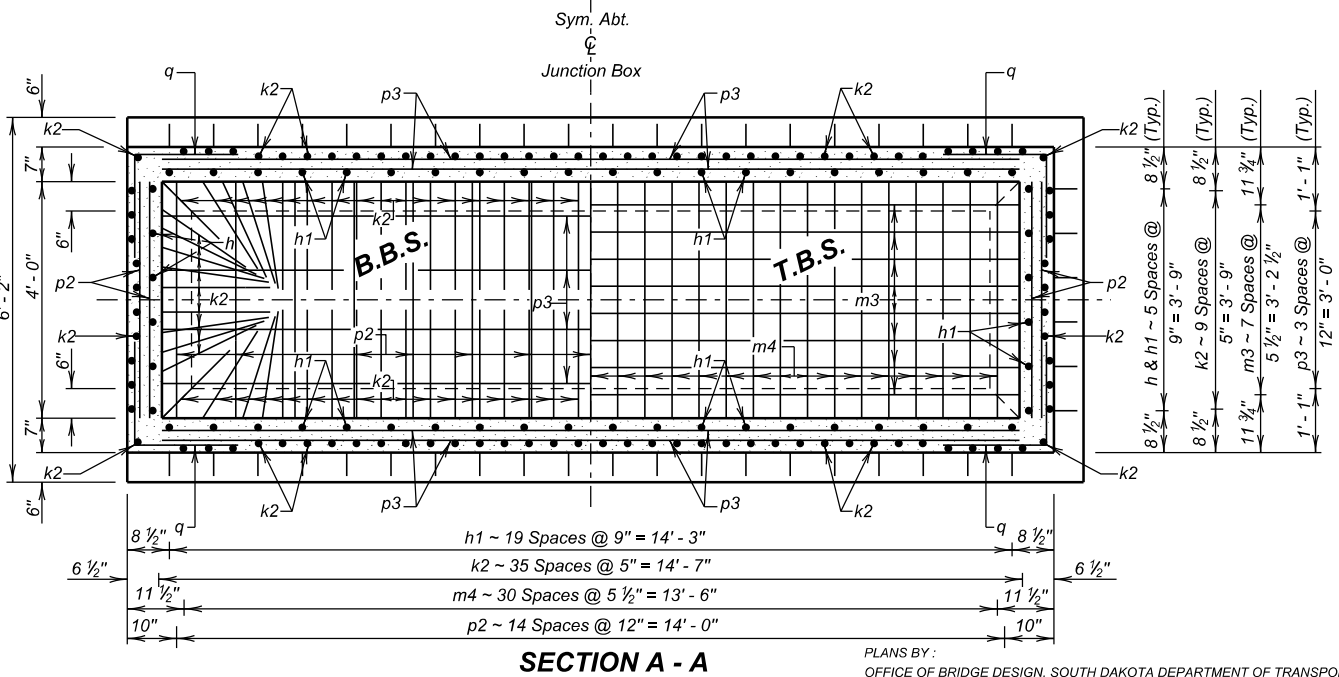
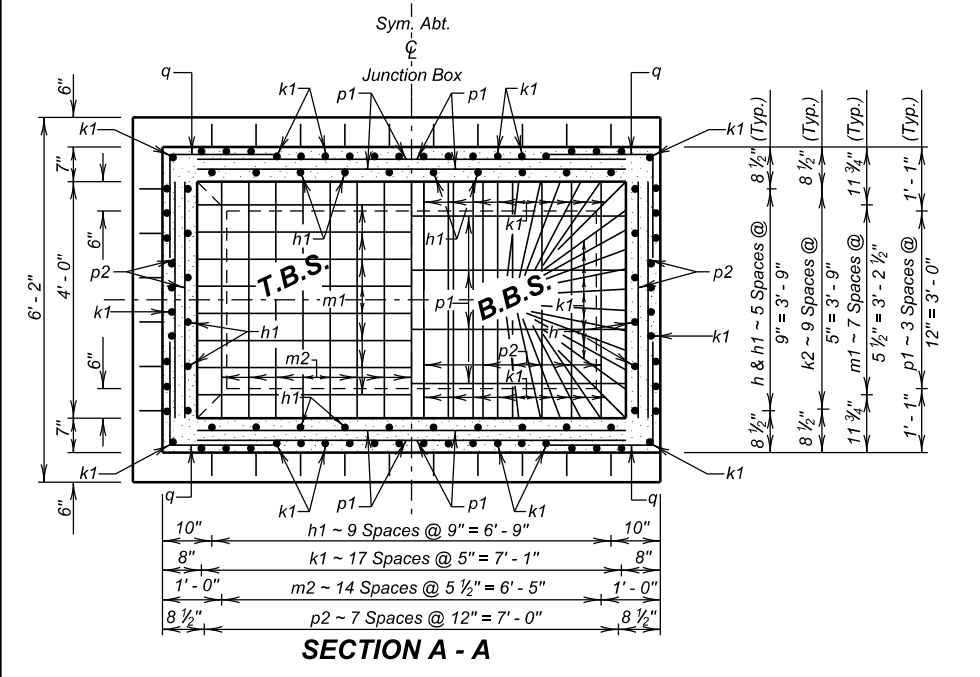
| REINFORCING SCHEDULE | | | | | Bending Details | |
|----------------------|-----|------|----------|------|-----------------|--|
| Mk. | No. | Size | Length | Type | | |
| a1 | 1 | 6 | 9' - 0" | T3 | Type 17 | |
| a2 | 3 | - | - | - | Type 17A | |
| h | 6 | 4 | 6' - 6" | Str. | Type 17A | |
| h1 | 26 | 4 | 7' - 0" | 17A | Type 17A | |
| k1 | 60 | 4 | 11' - 3" | 17 | Type 17A | |
| m1 | 8 | 4 | 8' - 9" | Str. | Type 17A | |
| m2 | 15 | 4 | 6' - 0" | Str. | Type 17A | |
| n1 | 8 | 4 | 8' - 3" | Str. | Type 17A | |
| n2 | 15 | 4 | 5' - 0" | Str. | Type 17A | |
| p1 | 28 | 4 | 7' - 3" | Str. | Type 17A | |
| p2 | 36 | 4 | 4' - 0" | Str. | Type 17A | |
| q | 12 | 4 | 3' - 6" | 17A | Type 17A | |

| REINFORCING SCHEDULE | | | | | Bending Details | |
|----------------------|-----|------|----------|------|-----------------|--|
| Mk. | No. | Size | Length | Type | | |
| a1 | 1 | 6 | 9' - 0" | T3 | Type 17 | |
| a2 | 3 | - | - | - | Type 17A | |
| h | 6 | 4 | 6' - 6" | Str. | Type 17A | |
| h1 | 46 | 4 | 7' - 0" | 17A | Type 17A | |
| k2 | 96 | 5 | 11' - 3" | 17 | Type 17A | |
| m3 | 8 | 6 | 16' - 0" | Str. | Type 17A | |
| m4 | 31 | 6 | 6' - 0" | Str. | Type 17A | |
| n3 | 8 | 6 | 15' - 6" | Str. | Type 17A | |
| n4 | 31 | 6 | 5' - 0" | Str. | Type 17A | |
| p2 | 50 | 4 | 4' - 0" | Str. | Type 17A | |
| p3 | 28 | 4 | 15' - 0" | Str. | Type 17A | |
| q | 12 | 4 | 3' - 6" | 17A | Type 17A | |

| LEGEND FOR PLACING RE-STEEL | |
|-----------------------------|-------------------------|
| T.T.S. | - Top of Top Slab |
| B.T.S. | - Bottom of Top Slab |
| T.B.S. | - Top of Bottom Slab |
| B.B.S. | - Bottom of Bottom Slab |
| O.F.W. | - Outside Face of Wall |
| I.F.W. | - Inside Face of Wall |



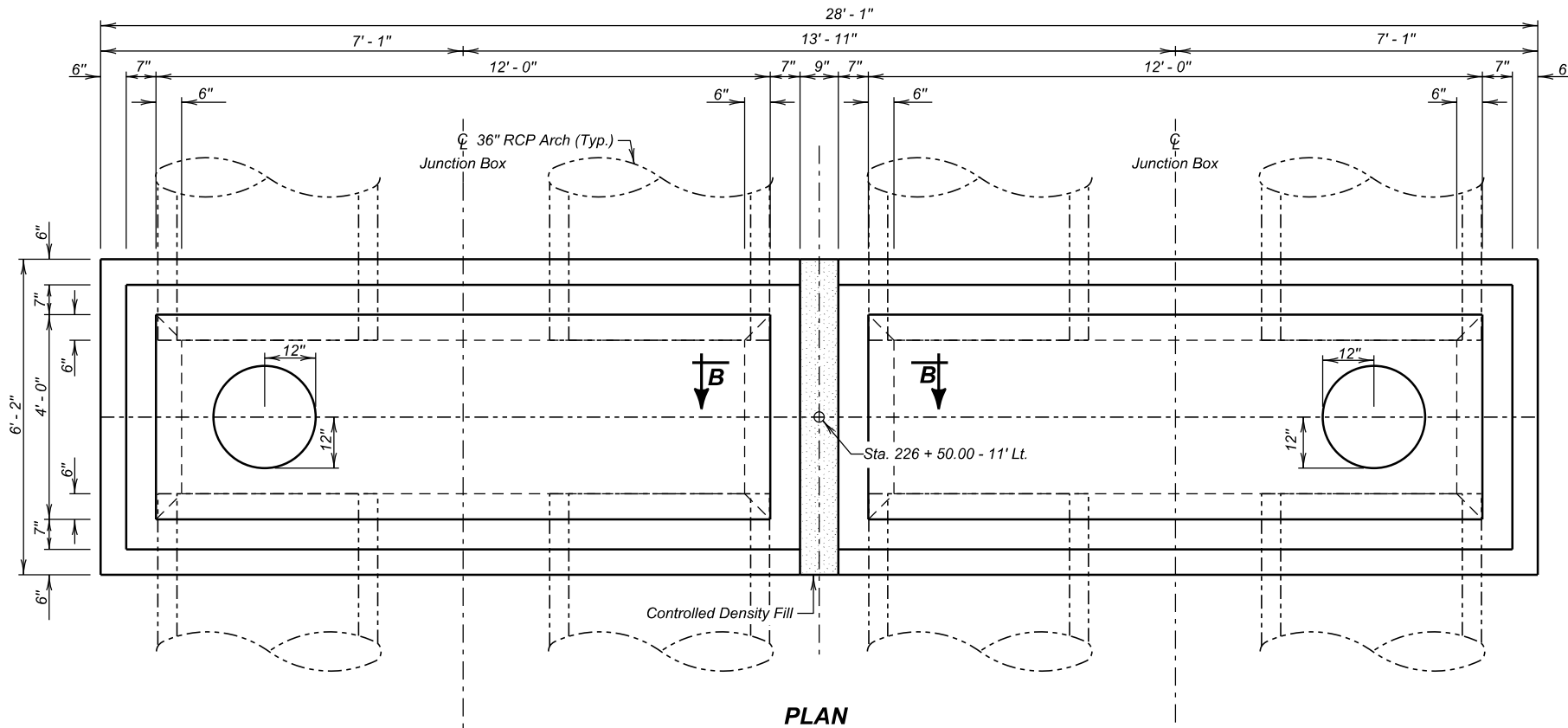
| LEGEND FOR PLACING RE-STEEL | |
|-----------------------------|-------------------------|
| T.T.S. | - Top of Top Slab |
| B.T.S. | - Bottom of Top Slab |
| T.B.S. | - Top of Bottom Slab |
| B.B.S. | - Bottom of Bottom Slab |
| O.F.W. | - Outside Face of Wall |
| I.F.W. | - Inside Face of Wall |



STA. 199 + 22.00 - 6' Rt. NH 0018(157)438
 PCN 6923
 LINCOLN COUNTY
 S. D. DEPT. OF TRANSPORTATION
 MARCH 2023
 DESIGNED BY BR LINC6926
 CK. DES. BY BS 6923WA01
 DRAFTED BY CRW
 Steve A. Johnson
 BRIDGE ENGINEER

The elevations shown in these plans are based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88).

| | | | |
|----------|-----------------|-----------|--------------|
| STATE OF | PROJECT | SHEET NO. | TOTAL SHEETS |
| S.D. | NH 0018(157)438 | B115 | B139 |



SPECIFICATIONS

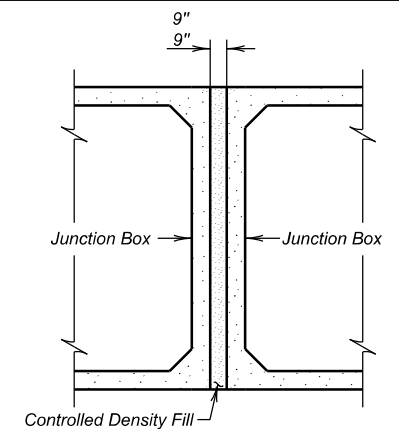
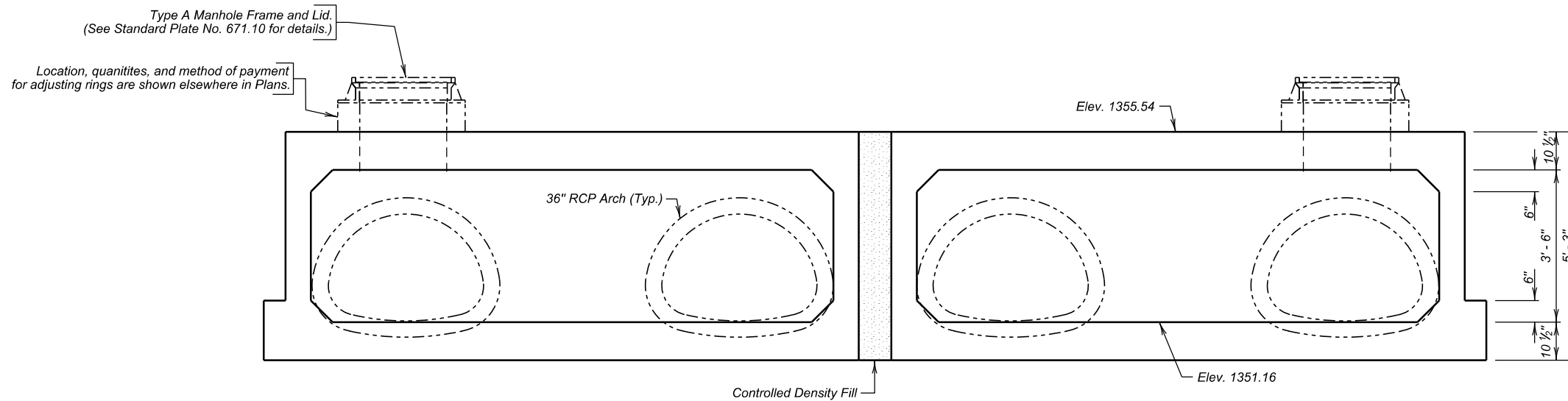
1. Design Specifications: AASHTO LRFD Bridge Design Specifications, 8th Edition.
2. Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 2015 Edition and required Provisions, Supplemental Specifications, and Special Provisions as included in the Proposal.

GENERAL NOTES

1. Design Live Load: HL-93. No construction loading in excess of legal load was considered.
2. The design of the Junction Box is based on a maximum fill over the Junction Box of 5 feet and minimum fill over the Junction Box is 1 feet.
3. Reinforcing steel will conform to ASTM A615 Grade 60. Cut and bend reinforcing steel as required to place pipe(s) thru junction box wall.
4. Junction Box may be precast. If precast, submit a checked design (done by a South Dakota registered P.E.) and shop plans to the Office of Bridge Design for approval.
5. Use 1 inch clear cover on all reinforcing steel unless otherwise noted.
6. All exposed edges will be chamfered $\frac{3}{4}$ inch.
7. Junction Box shown may be modified by the addition or omission of connecting pipes as noted elsewhere in the plans. All pipes entering Junction Box must fit between the inside face of walls.
8. The cost of furnishing and installing the manhole steps will be incidental to the contract unit price per Lb. for "Reinforcing Steel".
- * 9. Reduce total quantities of concrete by the amount of concrete displaced by the pipes. The total quantity of concrete will be computed to the nearest hundredth of a cubic yard. The total quantity of reinforcing steel will be computed to the nearest pound.

ESTIMATED QUANTITIES

| ITEM | UNIT | QUANTITY |
|-------------------------------|---------|----------|
| * Class M6 Concrete | Cu. Yd. | 17.9 |
| Reinforcing Steel | Lb. | 3467 |
| Type A8 Manhole Frame and Lid | Each | 2 |
| Controlled Density Fill | Cu. Yd. | 0.9 |



ELEVATION
(DETAIL OF CONNECTION BETWEEN
PRECAST ECCENTRIC MANHOLE COVER, PRECAST
PIPE SECTION, AND JUNCTION BOX)

SECTION B - B

DETAILS
FOR

"SPECIAL" 12' - 0" X 4' JUNCTION BOX

STA. 226 + 50.00 - 11' Lt
PCN 6923

NH 0018(157)438

LINCOLN COUNTY
S. D. DEPT. OF TRANSPORTATION
MARCH 2023

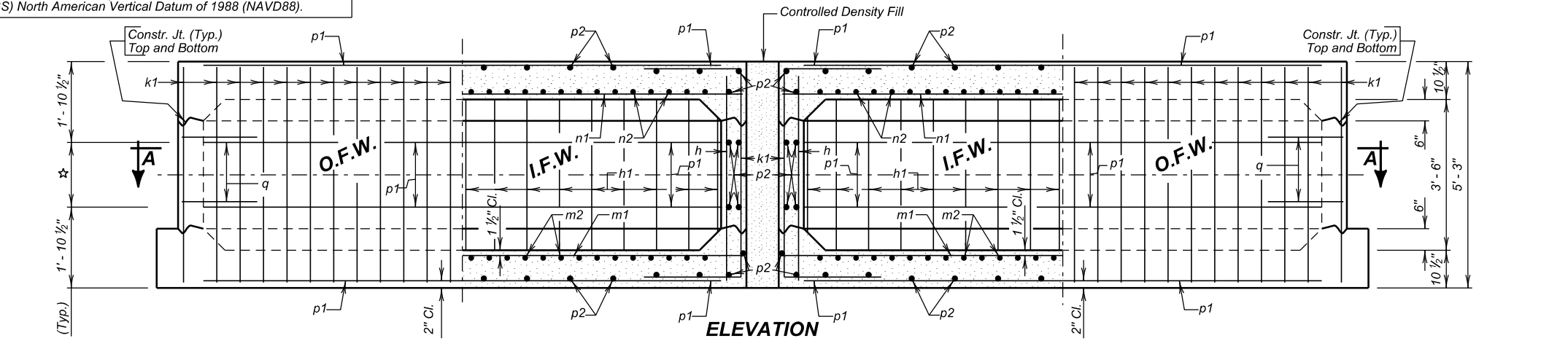
1 OF 2

PLANS BY:
OFFICE OF BRIDGE DESIGN, SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION

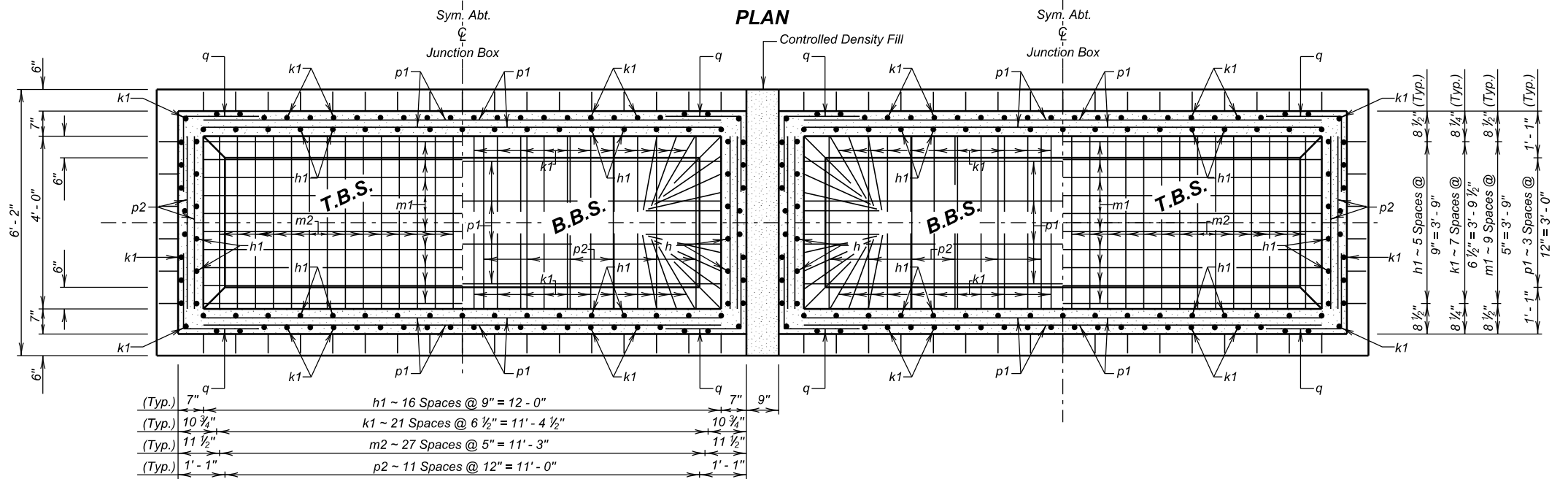
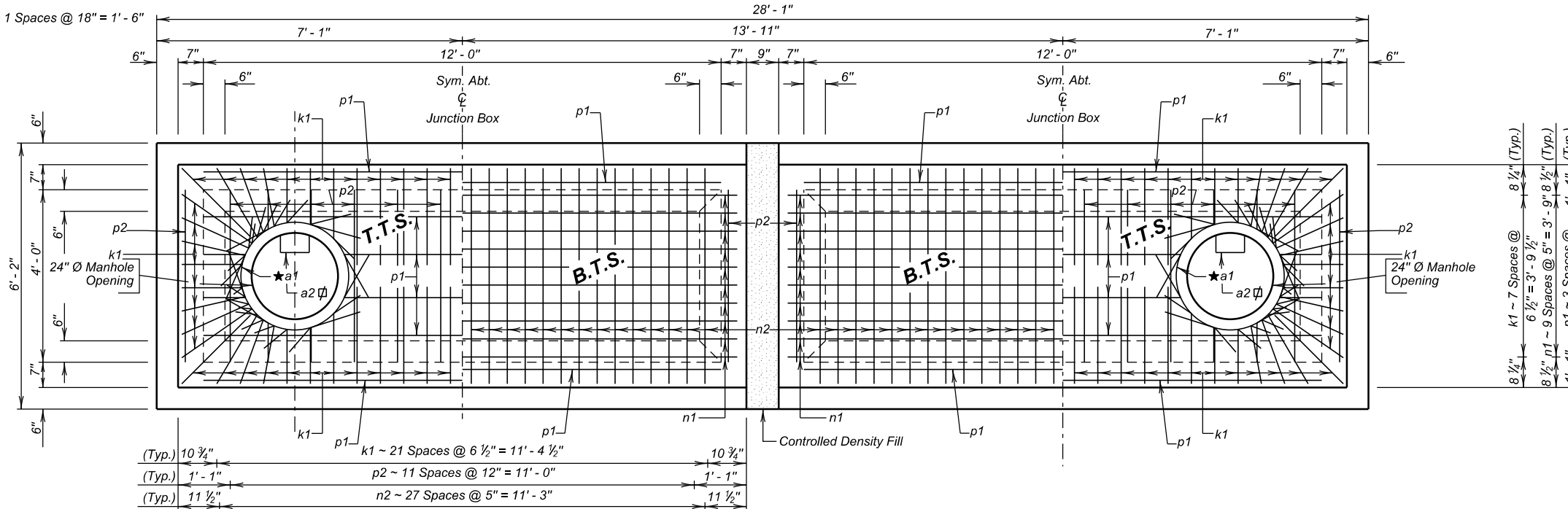
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|-------------------------------|-------------------------------|-------------------|--|
| DESIGNED BY BR LINC6926 | CK. DES. BY BS 6923WA01 | DRAFTED BY CRW | <i>Steve A. Johnson</i> BRIDGE ENGINEER |
|-------------------------------|-------------------------------|-------------------|--|

The elevations shown in these plans are based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88).

| | | | |
|----------|-----------------|-----------|--------------|
| STATE OF | PROJECT | SHEET NO. | TOTAL SHEETS |
| S.D. | NH 0018(157)438 | B116 | B139 |



☆ p1 & q ~ 1 Spaces @ 18" = 1' - 6"



SECTION A - A

| REINFORCING SCHEDULE | | | | | Bending Details | |
|----------------------|-----|------|----------|------|-----------------|--|
| Mk. | No. | Size | Length | Type | | |
| a1 | 2 | 6 | 9' - 0" | T3 | Type 17 | |
| a2 | 6 | - | - | - | Type 17A | |
| h | 12 | 4 | 4' - 9" | Str. | Type 17A | |
| h1 | 80 | 4 | 5' - 6" | 17A | Type 17A | |
| k1 | 128 | 5 | 9' - 6" | 17 | Type 17A | |
| m1 | 20 | 5 | 13' - 6" | Str. | Type 17A | |
| m2 | 56 | 5 | 6' - 0" | Str. | Type 17A | |
| n1 | 20 | 5 | 13' - 0" | Str. | Type 17A | |
| n2 | 56 | 5 | 5' - 0" | Str. | Type 17A | |
| p1 | 48 | 4 | 12' - 3" | Str. | Type 17A | |
| p2 | 88 | 4 | 4' - 0" | Str. | Type 17A | |
| q | 16 | 4 | 3' - 6" | 17A | Type 17A | |

NOTES:
 All dimensions are out to out of bars.
 ☆ Locate in center of top slab with 3" clearance at the manhole opening.
 ☐ Cast Iron Manhole Steps (R-1980-C) from Neenah Foundry or equivalent.

| PIPE DISPLACEMENT REDUCTIONS | | |
|------------------------------|----------------------------|-----------------------------|
| R.C. Pipe Diameter (Inches) | Thickness of Pipe (Inches) | Class M6 Concrete (Cu. Yd.) |
| 36" R.C.P.A. | 4 1/2 | 0.24 |

| LEGEND FOR PLACING RE-STEEL | |
|-----------------------------|-------------------------|
| T.T.S. | - Top of Top Slab |
| B.T.S. | - Bottom of Top Slab |
| T.B.S. | - Top of Bottom Slab |
| B.B.S. | - Bottom of Bottom Slab |
| O.F.W. | - Outside Face of Wall |
| I.F.W. | - Inside Face of Wall |

DETAILS FOR "SPECIAL" 12' - 0" X 4' JUNCTION BOX
 STA. 226 + 50.00 - 11' Lt
 NH 0018(157)438
 PCN 6923

LINCOLN COUNTY
 S. D. DEPT. OF TRANSPORTATION
 MARCH 2023

PLANS BY:
 OFFICE OF BRIDGE DESIGN, SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION

| | | | |
|-------------------------------|-------------------------------|-------------------|-------------------------------------|
| DESIGNED BY BR LINC6926 | CK. DES. BY BS 6923WA01 | DRAFTED BY CRW | Steve A. Johnson BRIDGE ENGINEER |
|-------------------------------|-------------------------------|-------------------|-------------------------------------|

The elevations shown in these plans are based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88).

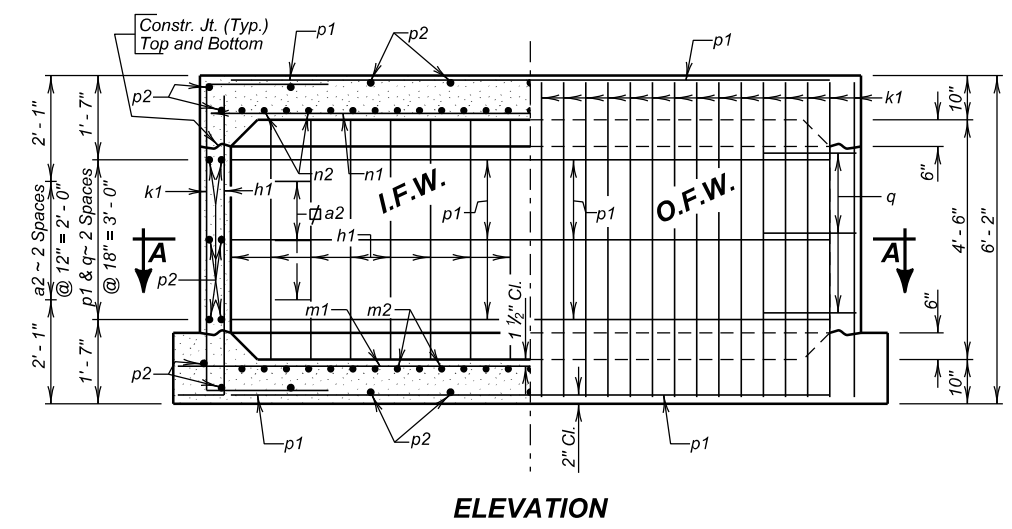
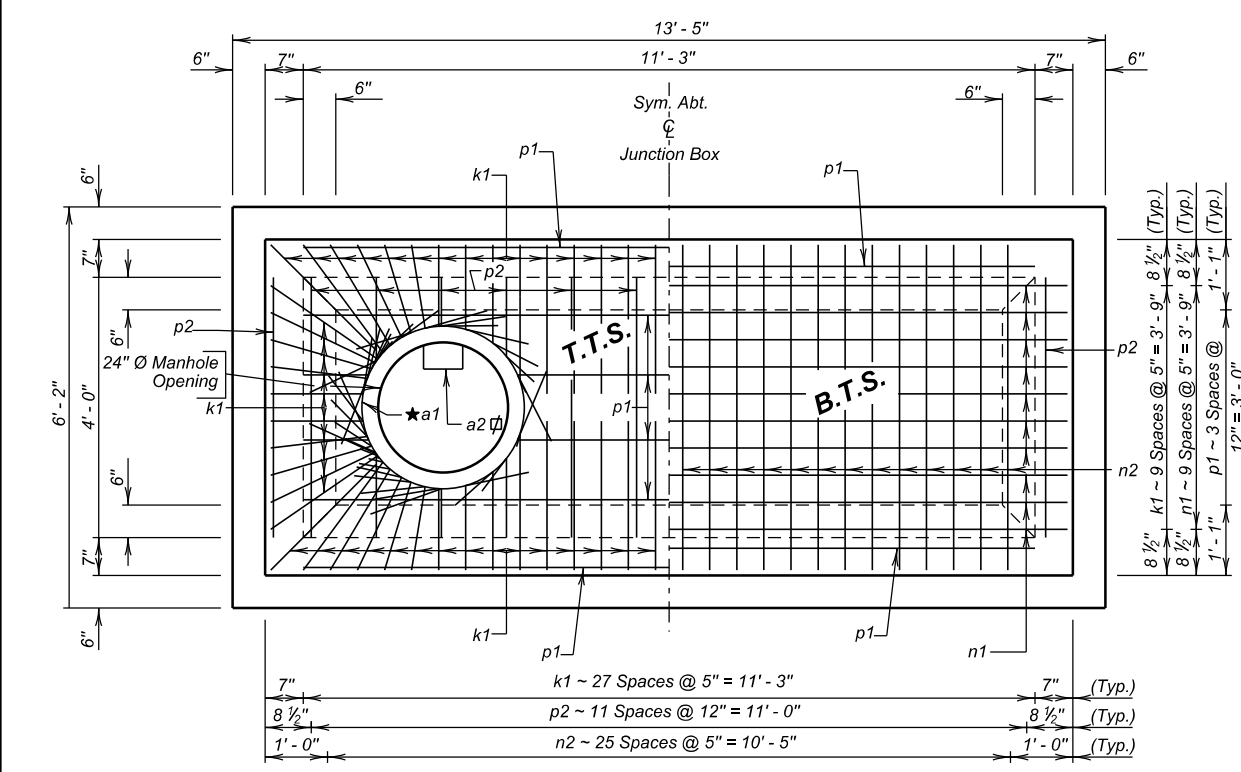
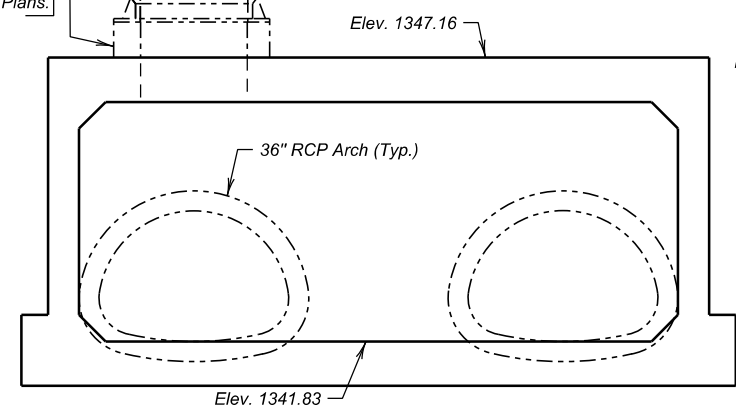
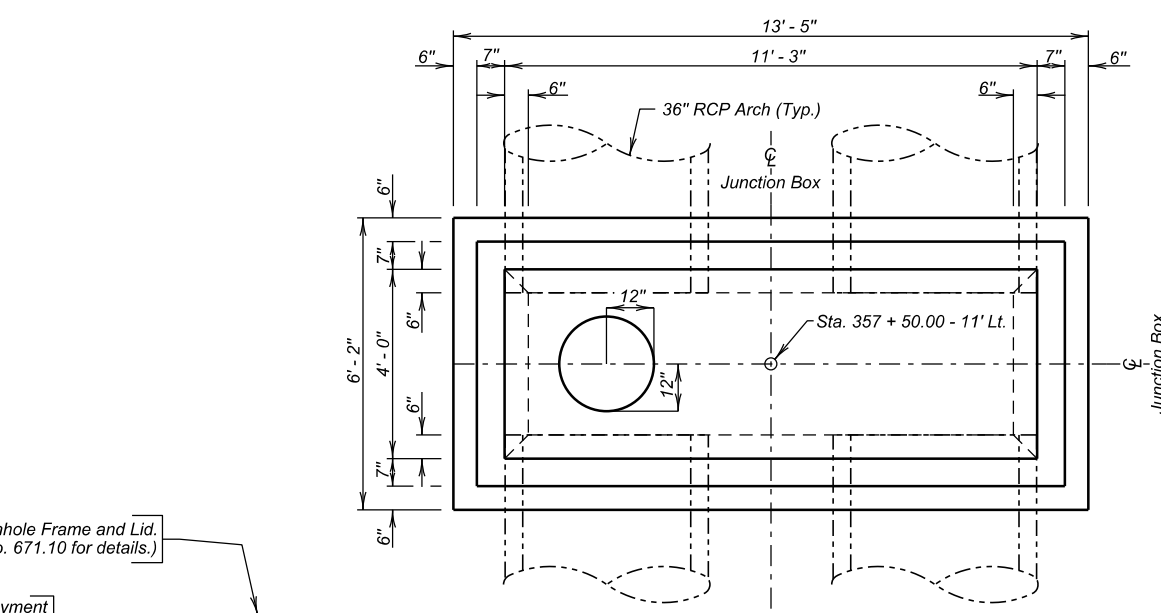
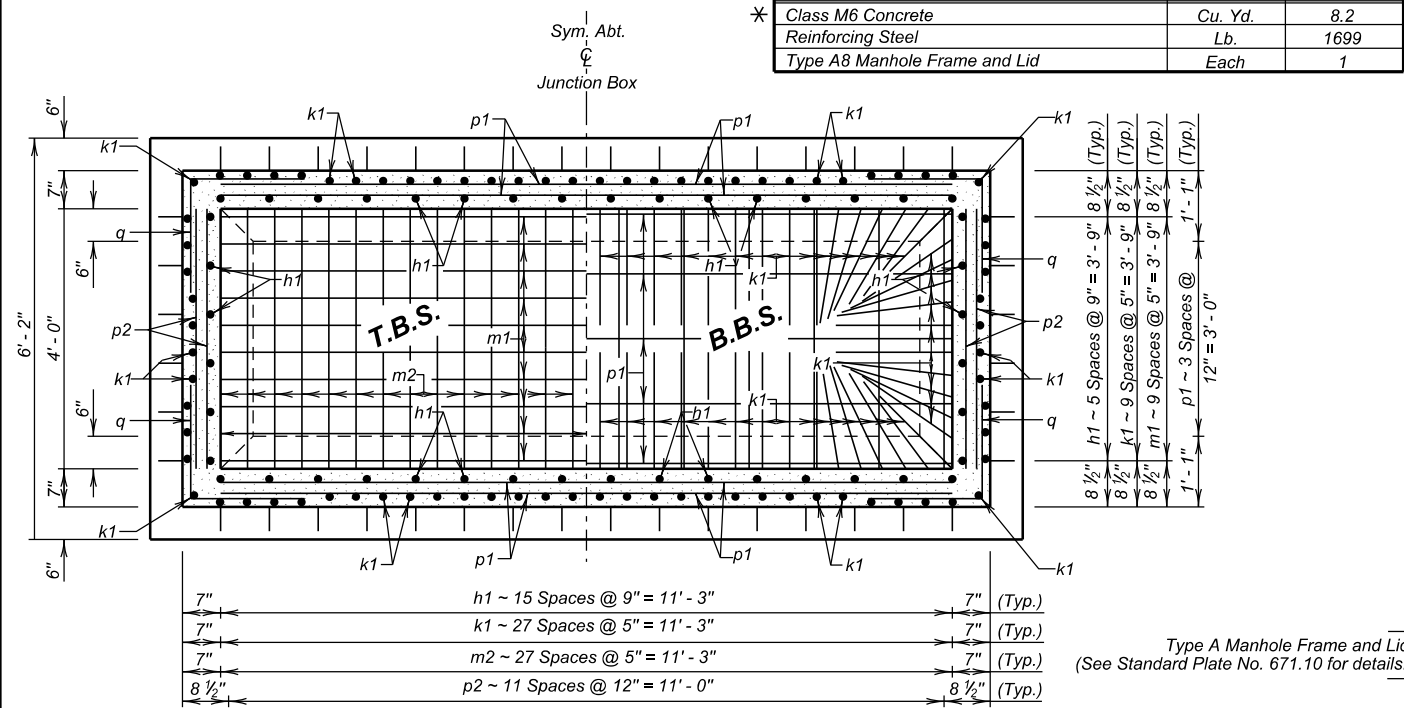
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|----------|-----------------|-----------|--------------|
| STATE OF | PROJECT | SHEET NO. | TOTAL SHEETS |
| S.D. | NH 0018(157)438 | B117 | B139 |

| ESTIMATED QUANTITIES | | |
|-------------------------------|---------|----------|
| ITEM | UNIT | QUANTITY |
| Class M6 Concrete | Cu. Yd. | 8.2 |
| Reinforcing Steel | Lb. | 1699 |
| Type A8 Manhole Frame and Lid | Each | 1 |

| PIPE DISPLACEMENT REDUCTIONS | | |
|------------------------------|----------------------------|-----------------------------|
| R.C. Pipe Diameter (Inches) | Thickness of Pipe (Inches) | Class M6 Concrete (Cu. Yd.) |
| 36" R.C.P.A. | 4 1/2" | 0.24 |

| LEGEND FOR PLACING RE-STEEL | |
|-----------------------------|-------------------------|
| T.T.S. | - Top of Top Slab |
| B.T.S. | - Bottom of Top Slab |
| T.B.S. | - Top of Bottom Slab |
| B.B.S. | - Bottom of Bottom Slab |
| O.F.W. | - Outside Face of Wall |
| I.F.W. | - Inside Face of Wall |

| REINFORCING SCHEDULE | | | | | |
|----------------------|-----|------|--------|------|-----------------|
| Mk. | No. | Size | Length | Type | Bending Details |
| a1 | 1 | 6 | 9'-0" | T3 | |
| a2 | 3 | - | - | - | |
| h1 | 44 | 4 | 6'-6" | 17A | |
| k1 | 80 | 4 | 10'-6" | 17 | |
| m1 | 10 | 5 | 13'-3" | Str. | |
| m2 | 28 | 5 | 6'-0" | Str. | |
| n1 | 10 | 5 | 12'-3" | Str. | |
| n2 | 26 | 5 | 5'-0" | Str. | |
| p1 | 28 | 4 | 11'-3" | Str. | |
| p2 | 44 | 4 | 4'-0" | Str. | |
| q | 12 | 4 | 3'-6" | 17A | |



- SPECIFICATIONS**
- Design Specifications: AASHTO LRFD Bridge Design Specifications, 8th Edition.
 - Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 2015 Edition and required Provisions, Supplemental Specifications, and Special Provisions as included in the Proposal.
- GENERAL NOTES**
- Design Live Load: HL-93. No construction loading in excess of legal load was considered.
 - The design of the Junction Box is based on a maximum fill over the Junction Box of 5 feet and minimum fill over the Junction Box is 1 foot.
 - Reinforcing steel will conform to ASTM A615 Grade 60. Cut and bend reinforcing steel as required to place pipe(s) thru junction box wall.
 - Junction Box may be precast. If precast, submit a checked design (done by a South Dakota registered P.E.) and shop plans to the Office of Bridge Design for approval.
 - Use 1 inch clear cover on all reinforcing steel unless otherwise noted.
 - All exposed edges will be chamfered 3/4 inch.
 - Junction Box shown may be modified by the addition or omission of connecting pipes as noted elsewhere in the plans. All pipes entering Junction Box must fit between the inside face of walls.
 - The cost of furnishing and installing the manhole steps will be incidental to the contract unit price per Lb. for "Reinforcing Steel".
 - Reduce total quantities of concrete by the amount of concrete displaced by the pipes. The total quantity of concrete will be computed to the nearest hundredth of a cubic yard. The total quantity of reinforcing steel will be computed to the nearest pound.

DETAILS FOR "SPECIAL" 11' - 3" X 4' JUNCTION BOX
 STA. 357 + 50.00 - 11' Lt. NH 0018(157)438
 PCN 6923

LINCOLN COUNTY
 S. D. DEPT. OF TRANSPORTATION
 MARCH 2023

SECTION C ESTIMATE OF QUANTITIES

| BID ITEM NUMBER | ITEM | QUANTITY | UNIT |
|-----------------|--|----------|------|
| 120E0600 | Contractor Furnished Borrow Excavation | 4,617 | CuYd |
| 260E6010 | Granular Material | 4,586.0 | Ton |
| 320E6000 | Temporary Asphalt | 5,890.0 | Ton |
| 332E0010 | Cold Milling Asphalt Concrete | 15,968 | SqYd |
| 634E0010 | Flagging | 500.0 | Hour |
| 634E0020 | Pilot Car | 200.0 | Hour |
| 634E0110 | Traffic Control Signs | 1,970.0 | SqFt |
| 634E0120 | Traffic Control, Miscellaneous | Lump Sum | LS |
| 634E0135 | Traffic Control Supervisor | Lump Sum | LS |
| 634E0275 | Type 3 Barricade | 87 | Each |
| 634E0340 | Temporary Raised Pavement Markers | 22.6 | Mile |
| 634E0380 | Tubular Marker | 4,110 | Each |
| 634E0390 | Replace Tubular Marker | 411 | Each |
| 634E0420 | Type C Advance Warning Arrow Board | 2 | Each |
| 634E0560 | Remove Pavement Marking, 4" or Equivalent | 308,013 | Ft |
| 634E0630 | Temporary Pavement Marking | 82.2 | Mile |
| 634E0700 | Traffic Control Movable Concrete Barrier | 89 | Each |
| 634E0750 | Temporary Concrete Barrier End Protection | 8 | Each |
| 634E0755 | Remove and Reset Temporary Concrete Barrier End Protection | 14 | Each |
| 634E0760 | Temporary Concrete Barrier End Protection Module Set or Repair Kit | 1 | Each |
| 634E1002 | Detour and Restriction Signing | 593.0 | SqFt |
| 634E1215 | Contractor Furnished Portable Changeable Message Sign | 4 | Each |
| 634E1255 | Contractor Furnished Speed Monitoring Radar Trailer | 2 | Each |

SEQUENCE OF OPERATIONS

The details in the traffic control plans are based on the following sequence of operations for construction of the project. Contractor requests to deviate from the sequence of operations will be submitted in writing to the Engineer for review. Approval of an alternate sequence of operations will only be allowed when the proposed changes meet with the Department's intent for traffic control and sequencing of the work. An alternate sequence will be submitted for review a minimum of one week prior to potential implementation.

The intent of the plan sequence of operations is to have the least amount of impact on the traveling public.

If the Contractor proposes an alternate sequence of operations from what is shown in these plans, the following requirements must be met:

- Contractor will submit a complete construction schedule for the duration of the project. A startup schedule will not be allowed.
- The construction schedule will be submitted a minimum of 2 weeks prior to the preconstruction meeting.

The project will be constructed to substantial completion during two full construction seasons, with a final completion in the mid-summer of the subsequent construction season. The Contractor can work on multiple phases at a time, but the entirety of Phase 1 and Phase 2 must be completed prior to substantial completion. See time provisions for additional information.

PHASE 1a: Phase 1a consists of the maintenance and construction of the existing roadway to make the existing roadway travelable during Phase 1b. It also consists of the beginning of the construction of the proposed box culverts.

PHASE 1b: Phase 1b consists of construction of new lanes of travel while utilizing the existing roadway for current traffic.

PHASE 2a: Phase 2a consists of the construction of temporary asphalt surfacing along with portions of permanent concrete in order to shift the traffic onto the new lanes that were constructed in Phase 1b.

PHASE 2b: Phase 2b consists of removing the existing roadway to build new lanes of travel.

PHASE 3: Phase 3 consists of moving traffic onto the new eastbound lanes that were constructed in Phase 1b and Phase 2b. The traffic diversion constructed in Phase 2a will be removed. The median concrete pavement for the entire project length will be constructed in Phase 3.

PHASE 1A GENERAL WORK DESCRIPTION

- Install fixed mounted traffic control ground mounted signs as shown in the Over Width Detour and the Traffic Layout Sheets.
- Begin the overlay and widening of the existing roadway for the construction of portions of the box culverts. Installation of half of the box culverts.
- Begin widening of the existing roadway. The existing inslope will be cut to a 14-inch depth adjacent to the existing shoulder, Contractor furnished borrow will be installed on the inslope, 8 inches of gravel will be installed, and a 4-inch lift of asphalt will be installed 2 inches below the top of existing adjacent shoulder.
 - Traffic will be reduced to one lane with flagging during construction activities and opened to a two lane with shoulder work during non-construction activities.
 - This construction occurs in the following locations. The Contractor will only have one flagging location at a time, with completed widening locations having two lanes with shoulder work traffic signs up.
 - STA 69+22 to STA 72+83
 - STA 120+38 to STA 155+00
 - STA 320+70 to STA 324+79
 - STA 424+92 to STA 425+73
- The 12 feet of existing roadway adjacent to the widening will be milled to a 2-inch depth, with a 2" overlay of asphalt installed over both the milled and the widening areas.
 - Traffic will be reduced to one lane with flagging during construction activities and opened to a two lane with shoulder work during non-construction activities.
 - This construction occurs in the following locations. The Contractor will only have one flagging location at a time, with completed locations open to full traffic.
 - STA 69+00 to STA 119+68
 - STA 120+38 to STA 156+16
 - STA 319+00 to STA 335+00
 - STA 424+92 to STA 425+73

PHASE 1B GENERAL WORK DESCRIPTION

- The construction of new lanes of travel will occur while traffic utilizes the existing roadway. The westbound lanes will be constructed from Station 46+81 to Station 278+78, while the eastbound lanes will be constructed from Station 281+25 to Station 473+32.
 - The Contractor must maintain a six-foot clearance between traffic and the proposed back of curb.
- Pavement markings will be removed in the locations where the Phase 1A asphalt overlaying occurs, and temporary pavement markers will be installed throughout the entirety of existing roadway for the project.

- Culverts will be constructed underneath the constructed roadway and will temporarily connected to the existing culverts.

PHASE 2A GENERAL WORK DESCRIPTION

- Temporary asphalt along with portions of permanent concrete will be installed in order to shift traffic onto the constructed lanes in Phase 1b.
 - Part 1 consists of the installation of temporary asphalt to connect the existing roadway west of the 475th Avenue intersection with the newly constructed Eastbound lanes.
 - It is anticipated traffic will be reduced to one lane with a flagger for the construction of this temporary asphalt.
 - Part 2 consists of removing the old roadway and constructing the new Westbound lanes from Station 278+75 to Station 284+25.
 - Part 3 consists of installing temporary asphalt between the constructed Westbound and Eastbound Lanes from STA 281+00 to STA 284+00.
- The traffic will be changed from the existing road to two-way traffic on the westbound lanes and eastbound lanes constructed in Phase 1b.
 - Temporary pavement markers will be installed trough the entirety of the traffic throughout the project.

PHASE 2B GENERAL WORK DESCRIPTION

- The existing roadway will be obliterated along with existing culverts.
- The eastbound lanes will be constructed from Station 53+57 to Station 281+25, while the westbound lanes will be constructed from Station 284+00 to Station 473+32.
 - The Contractor must maintain a six-foot clearance between traffic and the proposed back of curb.
- Culverts will be constructed underneath the constructed roadway and connected to the culverts installed in Phase 1b.

PHASE 3 GENERAL WORK DESCRIPTION

- Traffic will be moved onto the entirety of the eastbound lanes that were constructed in Phases 1b and 2b.
 - The temporary pavement markers placed in the westbound lanes on Phase 2b will be removed, and temporary pavement markers will be installed on the eastbound lanes that were constructed in Phase 2b.
- The traffic diversion constructed in Phase 2a will be removed.
- The median and center turn lane for the entirety of the project will be installed.
- Remove all temporary pavement markings
- Install permanent signing and pavement markings.
- Install lighting.
- Complete all remaining work items.



WORK ZONE SPEED REDUCTION

The Department is required to obtain a speed reduction resolution prior to the installation of any SPEED LIMIT (R2-1) signs shown in the plans. To provide adequate time for the resolution to be enacted, the Contractor will inform the Engineer a minimum of 3 weeks prior to the scheduled installation of any work zone speed reduction signs on the project. The information provided by the Contractor will include the anticipated date of sign installation, the newly reduced speed limit, the location of the work zone, and the anticipated completion date of work requiring the speed reduction.

TEMPORARY ASPHALT, GRANULAR MATERIAL, AND CONTRACTOR FURNISHED BORROW

The following contract items will be used as payment for the temporary asphalt, gravel cushion, and Contractor furnished borrow required for widening and overlay of existing roadway, traffic diversion, and access to driveways during and between phases as shown on the traffic control layout sheets.

Temporary Asphalt

All costs to furnish, install and remove the temporary asphalt will be incidental to the contract unit price per ton for "Temporary Asphalt". Temporary Asphalt will meet the Asphalt Concrete Composite requirements discussed in the specifications.

Granular Material

All costs to furnish, install and remove the granular material will be incidental to the contract unit price per ton for "Granular Material". The granular material will meet the gravel cushion requirements discussed in the specifications. The granular material installed may be allowed for re-use as gravel cushion beneath the proposed pavements if it meets the gravel cushion requirements discussed in the specifications.

Contractor Furnished Option Borrow

All costs to furnish, install and remove the granular material will be incidental to the contract unit price per ton for "Contractor Furnished Option Borrow". The option borrow will meet the requirements discussed in the specifications. The option borrow installed may be allowed for re-use as gravel cushion beneath the proposed pavements if it meets the option borrow requirements discussed in the specifications.

TEMPORARY PAVEMENT MARKING

Temporary Pavement Marking Paint will be used on milled and leveling surfaces for centerlines, lane lines, skips, and as directed by the Engineer. The Temporary Pavement Marking Paint will be placed at the location of the existing pavement markings except that centerline will be double yellow the entire project length and will be offset 6-inches from centerline of the roadway. It will be the Contractor's responsibility to determine which direction to offset so that the markings do not get covered up when the first half of the roadway is paved. Any markings that get covered by the paving operation will be reestablished as directed by the Engineer at the Contractor's expense. The Contractor will be responsible for marking out those exact locations.

Temporary Flexible Vertical Markers (Tabs) will be used on the top lift of asphalt surfacing for centerline delineation, lane lines, skips, and as directed by the Engineer. Tabs will be offset 6-inches from the location shown for permanent pavement markings. Centerline will be double yellow lines with tabs spaced at 5' the entire project length.

Temporary flexible vertical markers (tabs) will be required on the new concrete surfacing.

Temporary pavement marking paint will be allowed on the new concrete surfacing. Temporary pavement marking paint will be removed off the new concrete surface prior to the installation of permanent pavement markings. All cost associated with installing and removing temporary pavement marking paint will be incidental to the contract unit price per mile for "Temporary Pavement Marking". Temporary flexible vertical markers (tabs) may be used on the new concrete surfacing.

Covers on the tabs will be sufficiently secured to prevent traffic from dislodging the cover and when removed, the covers will be properly disposed of. The Contractor will remove and properly dispose of the tabs after permanent pavement marking is applied. Method of removal will be nondestructive to the road surface and will be accomplished within one week of completion of the permanent pavement marking.

Full reflectivity of all temporary flexible vertical markers (tabs) is required at all times. The Contractor will be required to replace any missing or non-reflective tabs after each installation as detailed below at no additional cost to the State.

Quantities of Temporary Pavement Markings consist of:

Phase 1a

Two passes for each box culvert structure. (0.4 miles total) It is anticipated that temporary raised pavement markers can be used in lieu of temporary 4" yellow pavement markings. (0.4 miles X 2 outer 4W Paint).

Phase 1b

One pass on the existing roadway for the entirety of the project. (8.6 miles total) Because of the possibility of this traffic being set up during the winter periods, it is anticipated that temporary raised pavement markers and temporary 4" yellow pavement markings will be used. (8.6 miles X 2 outer 4W paint X 2 inner 4Y paint). Also included in this quantity are temporary pavement markings for the channelization of traffic in the beginning and end of the project. (0.9 miles total)

Phase 2b

One pass on half of the proposed roadway for the entirety of the project. (4.4 miles Westbound + 4.2 miles Eastbound = 8.6 miles total) Because of the possibility of this traffic being set up during the winter periods, it is anticipated that temporary raised pavement markers and temporary 4" yellow pavement markings will be used. (8.6 miles X 2 outer 4W paint X 2 inner 4Y paint). Also included in this quantity are temporary pavement markings for the channelization of traffic at the beginning and end of the project. (0.9 miles total)

Phase 3

One pass on the remaining portion of the Eastbound lanes. (4.4 miles total) It is anticipated that temporary raised pavement markers can be used in lieu of temporary 4" yellow pavement markings. (4.4 miles X 2 outer 4W Paint). Also included in this quantity are temporary pavement markings for the channelization of traffic at the beginning and end of the project. (0.6 miles total)

In the absence of a signed lane closure or pilot car operation, FLAGGER (W20-7) symbol signs and flaggers, or a shadow vehicle with rotating yellow lights or strobe lights will be positioned on the shoulder in advance of workers for both directions of traffic during the installation and removal of the temporary flexible vertical markers (tabs). The traffic control device used will be moved intermittently to provide proper warning of the work operation. A ROAD WORK

AHEAD (W20-1) sign, a WORKER (W21-1) symbol sign or a BE PREPARED TO STOP (W3-4) sign will be mounted on the rear of the shadow vehicle. The method of traffic control used by the Contractor for this work must be approved by the Engineer.

TUBULAR MARKERS

The Engineer will inspect and approve tubular markers for use prior to the markers being installed on the project.

The color of the tubular markers on centerline will be predominately orange. The color of the tubular markers installed on the shoulders will be predominately white. The white tubular markers will be installed 2.0 feet from the existing edge line at intervals of approximately 480 feet.

All tubular markers will be a minimum of 28 inches in height. The base of the tubular marker should be attached to the roadway surface with a flexible non-permanent bituminous adhesive capable of being removed from the roadway surface after use. The pin used to connect the marker to the base will be of a type that will not puncture a vehicle tire if it should become dislodged from the base.

Tubular makers will be measured once at the beginning of each phase of construction for the limits of that work area. Tubular markers will be required to be relocated within each phase of work; no separate measurement will be made.

All costs for furnishing, installing, maintaining, and removing the tubular markers will be incidental to the contract unit price per each for "Tubular Marker".

CONTRACTOR FURNISHED SPEED MONITORING RADAR TRAILER

The Contractor will provide 2 radar speed feedback trailers to monitor traffic speeds on designated routes at locations specified in the field by the Engineer.

The radar speed feedback sign assembly will include a speed limit sign mounted in conjunction with the radar speed feedback display. The speed display will not flash vehicle speeds exceeding the speed limit or any other messages.

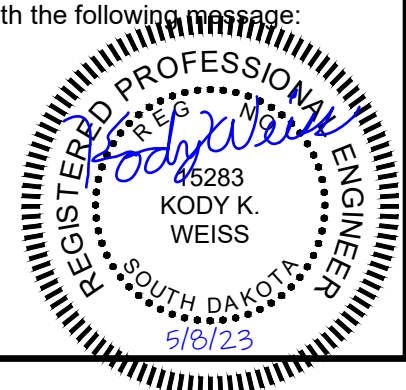
All costs associated with furnishing, maintaining, transporting, relocating if necessary, and removing the radar speed feedback trailers from locations specified by the Engineer will be incidental to the contract unit price per each for "Contractor Furnished Speed Monitoring Radar Trailer".

CONTACTOR FURNISHED PORTABLE CHANGEABLE MESSAGE SIGN

One week prior to starting work affecting the traveling public, portable changeable message signs (PCMS) will be installed at locations detailed in the plans to notify drivers of the upcoming construction. The Contractor will program the portable changeable message signs with the following message:

ROAD WORK
STARTS (Date)

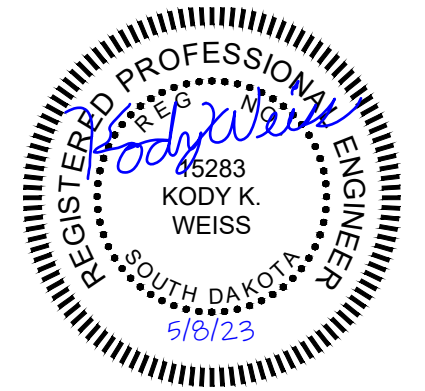
When work begins that will affect traffic patterns, the Contractor will re-program the PCMS with the messages as detailed in the plans.



| OTHER TRAFFIC CONTROL QUANTITIES | | | | | | | | | |
|--|------|----------|----------|----------|----------|---------|------------------|---------|------------------|
| Item | Unit | Phase 1A | Phase 1B | Phase 2A | Phase 2B | Phase 3 | Field Determined | Total | Payment Quantity |
| PCN 6923 | | | | | | | | | |
| Contractor Furnished Borrow | CY | 3,897 | | 620 | | | 100 | 4,617 | Use Total |
| Granular Material | Ton | 3,486 | | 600 | | | 500 | 4,586 | Use Total |
| Temporary Asphalt | Ton | 5,047 | | 643 | | | 200 | 5,890 | Use Total |
| Cold Milling Asphalt Concrete | SY | 15,968 | | | | | | 15,968 | Use Total |
| Flagging | Hour | 450 | 20 | 30 | 20 | 20 | 40 | 580 | Use Total |
| Pilot Car | Hour | 200 | | | | | | 200 | Use Total |
| Traffic Control Supervisor | LS | | | | | | | LS | Lump Sum |
| Temporary Raised Pavement Markers | mi | 0.4 | 8.6 | | 8.6 | 5.0 | | 22.6 | 22.6 |
| Tubular Markers | Each | 480 | 1,140 | | 1,150 | 1,140 | 200 | 4,110 | Use Total |
| Replace Tubular Markers | Each | 48 | 114 | | 115 | 114 | 20 | 411 | 411 |
| Type C Advance Warning Arrow Board | Each | | 2 | | 2 | 2 | | 2 | 2 |
| Remove Pavement Marking, 4" or Equivalent | ft | | 13,686 | | 2,340 | 290,667 | 1,320 | 308,013 | Use Total |
| Temporary Pavement Marking | mi | 0.7 | 35.3 | | 35.3 | 9.4 | 1.5 | 82.2 | Use Total |
| Traffic Control Movable Concrete Barrier | Each | 73 | 89 | 89 | | | | 89 | 89 |
| Temporary Concrete Barrier End Protection | Each | 8 | 8 | 8 | | | | 8 | 8 |
| Remove and Reset Temporary Concrete Barrier End Protection | Each | 8 | 6 | | | | | 14 | Use Total |
| Temporary Concrete Barrier End Protection Module Set or Repair Kit | Each | 1 | | | | | | 1 | Use Total |
| Contractor Furnished Portable Changeable Message Sign | Each | | 4 | | 4 | 4 | | 4 | 4 |
| Contractor Furnished Speed Monitoring Radar Trailer | Each | | 2 | | 2 | 2 | | 2 | 2 |

| TYPE 3 BARRICADES, 8' DOUBLE SIDED | |
|------------------------------------|-----------------|
| Phase | Quantity (Each) |
| Phase 1b | |
| Intersection Baricades | 48 |
| Field Determined | 5 |
| Total Phase 1b | 53 |
| Phase 2a Detour | |
| Intersection Baricades | 48 |
| Detour | 8 |
| Field Determined | 5 |
| Total Phase 2a | 61 |
| Phase 2b | |
| Intersection Baricades | 48 |
| Field Determined | 5 |
| Total Phase 2b | 53 |
| Phase 3 | |
| Intersection Baricades | 48 |
| Closed Lane every 1/4 Mile | 34 |
| Field Determined | 5 |
| Total Phase 3 | 87 |
| Payment Quantity | 87 |

| TABLE FOR OVERWIDTH SIGNING (SqFt) | | | | | | | |
|---|-----------|------------|-------------|----------------------|------------------|--------------|--|
| Sign Description | Sign Code | Width (in) | Height (in) | Sign Quantity (SqFt) | Payment Quantity | | |
| | | | | | No. of Signs | Total SqFt | |
| WIDTH RESTRICTION 12 FT WIDE XX MILES AHEAD | SPECIAL | 144 | 96 | 96 | 2 | 192 | |
| WIDTH RESTRICTION 12 FT WIDE XX MILES AHEAD | SPECIAL | 96 | 66 | 44 | 12 | 528 | |
| NO VEHICLES OVER 12 FEET WIDE WESTBOUND | SPECIAL | 78 | 24 | 13 | 4 | 52 | |
| NO VEHICLES OVER 12 FEET WIDE | SPECIAL | 78 | 24 | 13 | 1 | 13 | |
| | | | | | | 593.0 | |



SECTION D ESTIMATE OF QUANTITIES

| BID ITEM NUMBER | ITEM | QUANTITY | UNIT |
|-----------------|--|----------|------|
| 110E1690 | Remove Sediment | 9.6 | CuYd |
| 110E1693 | Remove Erosion Control Wattle | 3,320 | Ft |
| 110E1695 | Remove Sediment Filter Bag | 324 | Ft |
| 110E1700 | Remove Silt Fence | 3,540 | Ft |
| 230E0010 | Placing Topsoil | 81,403 | CuYd |
| 730E0100 | Cover Crop Seeding | 33.8 | Bu |
| 730E0202 | Type B Permanent Seed Mixture | 2,432 | Lb |
| 731E0200 | Fertilizing | 67.60 | Ton |
| 732E0100 | Mulching | 270.0 | Ton |
| 734E0102 | Type 2 Erosion Control Blanket | 4,975 | SqYd |
| 734E0154 | 12" Diameter Erosion Control Wattle | 3,320 | Ft |
| 734E0165 | Remove and Reset Erosion Control Wattle | 830 | Ft |
| 734E0180 | Sediment Filter Bag | 324 | Ft |
| 734E0510 | Shaping for Erosion Control Blanket | 2,770 | Ft |
| 734E0602 | Low Flow Silt Fence | 7,485 | Ft |
| 734E0604 | High Flow Silt Fence | 6,676 | Ft |
| 734E0610 | Mucking Silt Fence | 983 | CuYd |
| 734E0620 | Repair Silt Fence | 3,540 | Ft |
| 734E0845 | Sediment Control at Inlet with Frame and Grate | 8 | Each |
| 900E1320 | Construction Entrance | 3 | Each |

PERMANENT SEEDING

The areas to be seeded consist of all newly graded areas within the project limits except for the top of roadways, temporary easements under cultivation, and areas designated to be sod.

Type B Permanent Seed Mixture will consist of the following:

| Grass Species | Variety | Pure Live Seed (PLS) (Pounds/Acre) |
|--------------------|---|------------------------------------|
| Western Wheatgrass | Arriba, Flintlock, Rodan, Rosana, Walsh | 7 |
| Switchgrass | Dacotah, Forestburg, Nebraska 28, Pathfinder, Summer, Sunburst, Trailblazer | 3 |
| Indiangrass | Holt, Tomahawk, Chief, Nebraska 54 | 3 |
| Big Bluestem | Bison, Bonilla, Champ, Sunnyview, Rountree, Bonanza | 3 |
| Canada Wildrye | Mandan | 2 |
| Total: | | 18 |

PLACING TOPSOIL

The thickness will be approximately 4 inches within the right-of-way and 6 inches on temporary easements. The topsoil thickness for the option borrow pits will be as stated on the option borrow pit sheets.

The estimated amount of topsoil to be placed is as follows:

| Station | to Station | Topsoil (CuYd) |
|-------------------|------------|----------------|
| Begin | 55+00 | 22 |
| 55+00 | 70+00 | 535 |
| 70+00 | 85+00 | 2,050 |
| 85+00 | 100+00 | 2,502 |
| 100+00 | 115+00 | 3,370 |
| 115+00 | 130+00 | 2,605 |
| 130+00 | 145+00 | 1,694 |
| 145+00 | 160+00 | 2,366 |
| 160+00 | 175+00 | 2,993 |
| 175+00 | 190+00 | 3,046 |
| 190+00 | 205+00 | 2,849 |
| 205+00 | 220+00 | 2,887 |
| 220+00 | 235+00 | 2,745 |
| 235+00 | 250+00 | 2,945 |
| 250+00 | 265+00 | 2,832 |
| 265+00 | 280+00 | 2,866 |
| 280+00 | 295+00 | 3,103 |
| 295+00 | 310+00 | 2,602 |
| 310+00 | 325+00 | 2,416 |
| 325+00 | 340+00 | 3,339 |
| 340+00 | 355+00 | 3,244 |
| 355+00 | 370+00 | 3,034 |
| 370+00 | 385+00 | 2,574 |
| 385+00 | 400+00 | 2,443 |
| 400+00 | 415+00 | 2,527 |
| 415+00 | 430+00 | 2,771 |
| 430+00 | 445+00 | 2,601 |
| 445+00 | 460+00 | 2,147 |
| 460+00 | End | 1,795 |
| Subtotal: | | 72,903 |
| Option Borrow Pit | | 8,500 |
| Subtotal: | | 8,500 |
| Total: | | 81,403 |

COVER CROP SEEDING

Cover crop seeding may be used on this project as a temporary erosion control measure. The actual limits and use of cover crop seeding will be determined by the Engineer during construction.

MYCORRHIZAL INOCULUM

Mycorrhizal inoculum will consist of mycorrhizal fungi spores and mycorrhizal fungi-infected root fragments in a solid carrier. The carrier may include organic materials, calcinated clay, or other materials consistent with application and good plant growth. The supplier will provide certification of the fungal species claimed and the live propagule count. The inoculum will include a minimum 25% the fungal species *Rhizophagus intraradices*. The remaining 75% may include other endomycorrhizal fungal species.

All seed will be inoculated by the seed supplier with a minimum of 100,000 live propagules of mycorrhizal fungi per acre. All costs of inoculating the seed will be incidental to the contract unit price per pound for the corresponding permanent seed mixture.

The mycorrhizal inoculum will be as shown below or an approved equal:

| Product | Manufacturer |
|----------------------------|--|
| MycoApply | Mycorrhizal Applications, Inc. Grants Pass, OR Phone: 1-866-476-7800 www.mycorrhizae.com |
| AM 120 Multi Species Blend | Reforestation Technologies Int. Gilroy, CA Phone: 1-800-784-4769 www.reforest.com |
| LALRISE Prime and Max WP | Lallemand Specialties Inc. Milwaukee, WI Phone: 1-844-590-7781 www.lallemandplantcare.com |

MULCHING (GRASS HAY OR STRAW)

An additional 270 tons of Grass Hay or Straw Mulch has been added to the Estimate of Quantities for temporary erosion control on areas determined by the Engineer during construction.

If the Contractor uses a no-till drill, mulch may be applied prior to seeding and the mulch can then be punched into the soil by the no-till drill. If the Contractor uses this process, the no-till drill seeding will be completed immediately following the mulch application and the mulch will be punched into the soil at a 3-inch depth.

LOW FLOW SILT FENCE

The low flow silt fence fabric provided will be from the approved product list. The approved product list for low flow silt fence may be viewed at the following internet site:

<http://apps.sd.gov/HC60ApprovedProducts/main.aspx>

Low flow silt fence will be placed at the locations noted in the table and at locations that will minimize siltation of adjacent streams, lakes, dams, or drainage areas as determined by the Engineer during construction. Refer to Standard Plate 734.04 for details.

An additional quantity of Low Flow Silt Fence has been added to the Estimate of Quantities for temporary sediment control.

TABLE OF LOW FLOW SILT FENCE

| Station | Location | Quantity (Ft) |
|----------------------|-----------------------------------|---------------|
| 89+00 L to 92+60 L | Perimeter Control | 368 |
| 120+00 R to 121+00 R | Perimeter Control | 100 |
| 191+70 L to 193+50 L | Perimeter Control | 194 |
| 353+50 L to 355+00 L | Perimeter Control | 171 |
| 455+00 R to 460+00 R | Perimeter Control | 502 |
| | Additional Quantity Borrow Pit A: | 3,100 |
| | Additional Quantity Borrow Pit B: | 2,800 |
| | Additional Quantity: | 250 |
| | Total: | 7,485 |

HIGH FLOW SILT FENCE

The high flow silt fence fabric provided will be from the approved product list. The approved product list for high flow silt fence may be viewed at the following internet site:

<http://apps.sd.gov/HC60ApprovedProducts/main.aspx>

High flow silt fence will be placed at the locations noted in the table and at locations that will minimize siltation of adjacent streams, lakes, dams, or drainage areas as determined by the Engineer during construction. Refer to Standard Plate 734.05 for details.

An additional quantity of high flow silt fence has been added to the Estimate of Quantities for temporary sediment control.

TABLE OF HIGH FLOW SILT FENCE

| Station | Location | Quantity (Ft) |
|---------|--|---------------|
| 71+75 | Across Ditch at Inlet and Outlet Ends of Pipe (60 Ft Each End) | 120 |
| 78+06 R | Across Ditch at Inlet End of Pipe | 30 |
| 82+19 L | Across Ditch at Inlet End of Pipe | 30 |
| 92+98 L | Inlet End of Pipe | 18 |
| 93+67 R | Inlet End of Pipe | 18 |
| 98+45 L | Across Ditch at Inlet End of Pipe | 30 |

| | | | | |
|-----------------|---|-----|-------------|---|
| 103+60 | Installed at Locations Determined by the Engineer During Construction | 400 | | |
| Box Culvert | | | | |
| 109+34 R | Inlet End of Pipe | 18 | | |
| 119+55 R | Inlet End of Pipe | 18 | 323+75 R | Inlet End of Pipe 18 |
| 120+45 L | Across Ditch at Inlet End of Pipe (30 Ft Each Side) | 60 | 331+37 L | Inlet End of Pipe 18 |
| | | | 341+96 L | Across Ditch at Inlet End of Pipe 30 |
| 123+56 R | Across Ditch at Inlet End of Pipe | 30 | 347+27 L | Across Ditch at Inlet End of Pipe 30 |
| 128+75 R | Inlet End of Pipe | 18 | 347+92 R | Across Ditch at Inlet End of Pipe 30 |
| 133+97 | Across Ditch at Inlet and Outlet Ends of Pipe (60 Ft Each End) | 120 | 357+50 | Across Ditch at Inlet and Outlet Ends of Pipe (60 Ft Each End) 120 |
| 146+30 L | Inlet End of Pipe | 18 | 362+83 L | Across Ditch at Inlet End of Pipe 30 |
| 148+00 | Across Ditch at Inlet and Outlet Ends of Pipe (60 Ft Each End) | 120 | 369+87 L | Inlet End of Pipe 18 |
| | | | 369+17 R | Inlet End of Pipe 18 |
| 163+75 | Installed at Locations Determined by the Engineer During Construction | 400 | 382+25 | Across Ditch at Inlet and Outlet Ends of Pipe (60 Ft Each End) 120 |
| Triple Pipe | | | | |
| 162+00 L | Inlet End of Pipe | 18 | 384+59 L | Inlet End of Pipe 18 |
| 168+00 R | Inlet End of Pipe | 18 | 386+80 R | Across Ditch at Inlet End of Pipe 30 |
| 174+18 | Across Ditch at Inlet and Outlet Ends of Pipe (60 Ft Each End) | 120 | 389+76 L | Across Ditch at Inlet End of Pipe 30 |
| | | | 393+37 R | Across Ditch at Inlet End of Pipe 30 |
| 189+08 L | Across Ditch at Inlet End of Pipe | 30 | 398+24 L | Across Ditch at Inlet End of Pipe 30 |
| 199+22 | Installed at Locations Determined by the Engineer During Construction | 400 | 401+00 L | Across Ditch at Inlet End of Pipe 30 |
| Triple Pipe | | | 402+06 L | Across Ditch at Inlet End of Pipe (30 Ft Each Side) 60 |
| 192+18 R | Across Ditch at Inlet End of Pipe | 30 | | |
| 204+19 R | Across Ditch at Inlet End of Pipe | 30 | 404+15 L | Across Ditch at Inlet End of Pipe 30 |
| 210+81 R | Across Ditch at Inlet End of Pipe | 30 | 406+30 L | Across Ditch at Inlet End of Pipe 30 |
| 217+37 R | Across Ditch at Inlet End of Pipe | 30 | 412+11 L | Inlet End of Pipe 18 |
| 226+50 | Installed at Locations Determined by the Engineer During Construction | 400 | 412+49 R | Inlet End of Pipe 18 |
| Quadruple Pipe | | | 433+50 R | Across Ditch at Inlet End of Pipe (30 Ft Each Side) 60 |
| 235+66 R | Inlet End of Pipe | 18 | | |
| 239+88 L | Inlet End of Pipe | 18 | 435+33 L | Across Ditch at Inlet End of Pipe 30 |
| 240+03 R | Inlet End of Pipe | 18 | 444+78 R | Inlet End of Pipe 18 |
| 243+00 | Across Ditch at Inlet and Outlet Ends of Pipe (60 Ft Each End) | 120 | 445+34 R | Across Ditch at Inlet End of Pipe (30 Ft Each Side) 60 |
| | | | | |
| 251+89 L | Inlet End of Pipe | 18 | 448+19 L | Across Ditch at Inlet End of Pipe 30 |
| 267+51 L | Inlet End of Pipe | 18 | 452+31 L | Inlet End of Pipe 18 |
| 267+67 R | Inlet End of Pipe | 18 | 461+60 L | Across Ditch at Inlet End of Pipe 30 |
| 271+88 R | Inlet End of Pipe | 18 | 461+61 R | Across Ditch at Inlet End of Pipe 30 |
| 278+30 R | Inlet End of Pipe | 18 | 467+11 L | Inlet End of Pipe 18 |
| 278+30 L | Inlet End of Pipe | 18 | 470+23 | Across Ditch at Inlet and Outlet Ends of Pipe (60 Ft Each Side) 120 |
| 278+48 (L&Ah) L | Inlet End of Pipe | 18 | | |
| 286+22 | Installed at Locations Determined by the Engineer During Construction | 400 | 465+80 | Installed at Locations Determined by the Engineer During Construction 400 |
| Quadruple Pipe | | | Box Culvert | |
| 284+94 R | Across Ditch at Inlet End of Pipe | 30 | | Quantity from Interim Sediment Control at Inlets: 254 |
| 291+74 L | Across Ditch at Inlet End of Pipe | 30 | | Additional Quantity: 1,250 |
| 291+79 R | Across Ditch at Inlet End of Pipe | 30 | | Total: 6,676 |
| 297+22 R | Inlet End of Pipe | 18 | | |
| 297+05 L | Inlet End of Pipe | 18 | | |
| 301+32 L | Inlet End of Pipe | 18 | | |
| 304+06 L | Inlet End of Pipe | 18 | | |
| 307+57 L | Inlet End of Pipe | 18 | | |
| 308+17 R | Inlet End of Pipe | 18 | | |
| 311+25 L | Across Ditch at Inlet End of Pipe | 30 | | |
| 321+46 L | Across Ditch at Inlet and Outlet Ends of Pipe (60 Ft Each End) | 120 | | |

INTERIM SEDIMENT CONTROL AT INLETS, MANHOLES, AND JUNCTION BOXES AFTER SURFACING REMOVAL AND BEFORE PLACEMENT OF SURFACING

Refer to Standard Plate 734.05 for details of installation of high flow silt fence at drop inlets, manholes, and junction boxes.

The high flow silt fence fabric provided will be from the approved product list. The approved product list for high flow silt fence may be viewed at the following internet site:

<http://apps.sd.gov/HC60ApprovedProducts/main.aspx>

In addition, the Contractor will do the following for this installation:

- A space of at least 1' will be provided between the silt fence installation and the inlet. This space will be filled completely with a 2" depth of aggregate, 2" minus or smaller.
- The top elevation of the silt fence will be such that a 12" horizontal flap of silt fence will remain at the bottom.
- The base of the silt fence will conform to the natural ground profile but does not need to be trenched in at the bottom.
- The extra 12" of the silt fence material may be cut so that the material will lay flat upon the subgrade.
- Sediment filter bags will be placed on the 12" flap around the perimeter of the silt fence installation. The sediment filter bags will overlap 6" at the ends and be placed tightly together.
- The sediment filter bags will be filled with clean aggregate 2" minus or smaller.

The Sediment Filter Bag will be as shown below or an approved equal:

| Product | Manufacturer |
|-----------|---|
| Snake Bag | Sacramento Bag Manufacturing Co. Sacramento, CA Phone: 1-800-287-2247 www.sacbag.com |
| Rock Log | SRW Products Princeton, MN Phone: 1-763-260-7822 www.srwproducts.com |

All costs for furnishing and installing the sediment filter bags will be incidental to the contract unit price per foot for "Sediment Filter Bag."

All costs for removing the sediment filter bags will be incidental to the contract unit price per foot for "Remove Sediment Filter Bag".

Payment for high flow silt fence will be as stated in Section 734.5 of the Specifications.

All costs for furnishing, installing, and removing the 2" depth of aggregate will be incidental to other erosion and sediment control contract items.

All costs for removing and disposing of sediment collected by the sediment control device will be incidental to the contract unit price per cubic yard for "Remove Sediment".

The removed sediment will be placed at a location away from the drop inlet where the sediment will not be washed back into the drop inlet or other storm sewer system.

The Contractor and Engineer will inspect and maintain the sediment control device once every week and within 24 hours after every rainfall event greater than 1/2".

TABLE OF INTERIM SEDIMENT CONTROL AT INLETS, MANHOLES, AND JUNCTION BOXES AFTER SURFACING REMOVAL AND BEFORE PLACEMENT OF SURFACING

| Station | High Flow Silt Fence Quantity (Ft) | Sediment Filter Bag Quantity (Ft) | Remove Sediment Quantity (CuYd) |
|----------|------------------------------------|-----------------------------------|---------------------------------|
| 148+00 L | 36 | 48 | 0.25 |
| 156+64 L | 18 | 24 | 0.25 |
| 199+22 R | 48 | 62 | 0.25 |
| 226+50 L | 50 | 64 | 0.25 |
| 322+18 L | 18 | 24 | 0.25 |
| 357+50 L | 48 | 54 | 0.25 |
| 467+31 L | 18 | 24 | 0.25 |
| 467+31 L | 18 | 24 | 0.25 |
| Totals: | 254 | 324 | 2.00 |

SEDIMENT CONTROL AT INLETS WITH FRAMES AND GRATES

This type of sediment control device should be used where there is pavement in the vicinity of the drop inlets and storm water or sediment could possibly enter the frame and grate. Sediment Control at Inlet with Frame and Grate will be installed prior to working in the vicinity of the drop inlets.

The Contractor will be responsible for maintaining and repairing the sediment control devices for the duration of the project for which sediment control measures are required. Maintenance will be scheduled to prevent storm water from backing up into the driving lane.

"Sediment Control at Inlet with Frame and Grate" will be paid for one time at each location, regardless of the number of times the sediment control devices are installed, inspected, cleaned, removed, repaired, or replaced. All costs associated with furnishing, installing, inspecting, maintaining, cleaning, sediment removal, and repairing Sediment Control at Inlet with Frame and Grate will be incidental to the contract unit price per each for "Sediment Control at Inlet with Frame and Grate".

Sediment collection devices will be:

A commercial made sediment collection device from the "Sediment Control at Inlet with Frame and Grate" list or an approved equal. The device will be installed in reinforced concrete drop inlets in accordance with the manufacturer's recommendations.

A sediment control device as shown on Standard Plate 734.10. Filter fabric used for constructing the sediment control at inlets with frames and grates will be the same type of fabric that is used in high flow silt fence from the approved product list. The approved product list may be viewed at the following internet site:

<http://sddot.com/business/certification/products/Default.aspx>

Sediment Control at Inlet with Frame and Grate Approved List:

| Product | Manufacturer |
|---|---|
| InfraSafe Debris Collection Device with filter sock | Royal Environmental Systems, Inc. Stacy, MN Phone: 1-800-817-3240 www.royalenterprises.net |
| Dandy Curb Sack and Dandy Curb Bag for curb inlets. Dandy Bag, Dandy Sack, and Dandy Pop for median drains. | Dandy Products Inc. Powell, OH Phone: 1-800-591-2284 www.dandyproducts.com |
| Silt Trapper | Storm Water Solutions Lakeville, MN Phone: 1-952-461-4376 www.silttrapper.com |
| DIP Basket | Skyview Construction Co., LLC Summit, SD Phone: 1-605-520-0555 |

(continued)

| | |
|---------------------------------|--|
| FLEXSTORM Inlet Filters | Inlet and Pipe Protection, Inc. Naperville, IL Phone: 1-866-287-8655 www.inletfilters.com |
| GR-8 Guard or Combo Guard | ERTEC Environmental Systems LLC Alameda, CA Phone: 1-866-521-0724 www.ertecsystems.com |
| BX Inlet Sediment Boxes | BX Civil and Construction Dell Rapids, SD Phone: 1-605-428-5483 bx-cc.com |
| EZ-Flo and EZ-Catch | Flo-Water, LLC West Des Moines, IA Phone: 1-515-577-6763 www.flo-water.net |
| Basin Bag | CSI Geoturf Highland, MI Phone: 1-248-887-0855 https://geoturf.com/ |

TABLE OF SEDIMENT CONTROL AT INLETS WITH FRAMES AND GRATES

| Station | Quantity (Each) |
|---------------|-----------------|
| 148+00 L | 1 |
| 156+64 L | 1 |
| 199+22 R | 1 |
| 226+50 L | 1 |
| 322+18 L | 1 |
| 357+50 L | 1 |
| 467+31 L | 1 |
| 467+31 L | 1 |
| Total: | 8 |

DEWATERING AND SEDIMENT COLLECTING

The Contactor has the option to treat sediment laden water trapped within the project limits or the Contractor may elect to transport sediment laden water off the project. Refer to the OPTIONS FOR DEWATERING AND SEDIMENT COLLECTING detail sheet for more information.

Water transported off the project limits will not be disposed of in an area where it can enter a waterway. The disposal site must be approved by the Engineer.

Separate payment will not be made for any Dewatering and Sediment Collection efforts. All costs involved with necessary Dewatering and Sediment Collection efforts will be incidental to other contract items.

SDDOT CONSTRUCTION ENTRANCE

If the SDDOT Construction Entrance is utilized, then the Contractor will install the SDDOT Construction Entrance in accordance with these notes and the detail drawings.

Pit run material will be obtained from a granular source and will conform to the following gradation:

| Sieve Size | Percent Passing |
|------------|-----------------|
| 6" | 100% |
| #4 | 0-60% |
| #200 | 0-20% |

The pit run material will be compacted to the satisfaction of the Engineer.

The aggregate for the granular material will conform to the following gradation requirements:

| Sieve Size | Percent Passing |
|------------|-----------------|
| 3" | 100% |
| 2 1/2" | 90-100% |
| 1 1/2" | 25-60% |
| 3/4" | 0-10% |
| 1/2" | 0-5% |

The granular material will be placed in 6" maximum lifts.

It is anticipated that the granular material will need to be periodically removed and replaced as it becomes inundated with mud and sediment.

The Reinforcement Fabric (MSE) will be in conformance with Section 831 of the Specifications. The Reinforcement Fabric (MSE) will be on the Approved Products List for this material or will be certified by the supplier to meet this specification prior to installation.

The Reinforcement Fabric (MSE) should be kept as taut as possible prior to placing.

Equipment will not be allowed on the Reinforcement Fabric (MSE) until the first lift of granular material is in place.

All seams in the Reinforcement Fabric (MSE) will be overlapped at least 2' and shingled.

CONSTRUCTION ENTRANCE

The Contractor will install a Construction Entrance at locations where there is a potential for mud tracking and sediment flow from the construction site and work area onto a paved public roadway.

It is the Contractor's option to use the SDDOT Construction Entrance (See SDDOT Construction Entrance notes and details), a product from the list provided in these notes, or other products or processes as approved by the Engineer during construction.

If the Contractor elects to use one of the products listed in the table, then the Contractor will install the construction entrance product in accordance with the manufacturer's installation instructions or as directed by the Engineer.

The Contractor will maintain the construction entrance such that mud tracking and sediment flow will not enter the roadway or adjacent drainage areas. The construction entrance will be routinely inspected, and the Contractor will repair or replace material as deemed necessary by the Engineer.

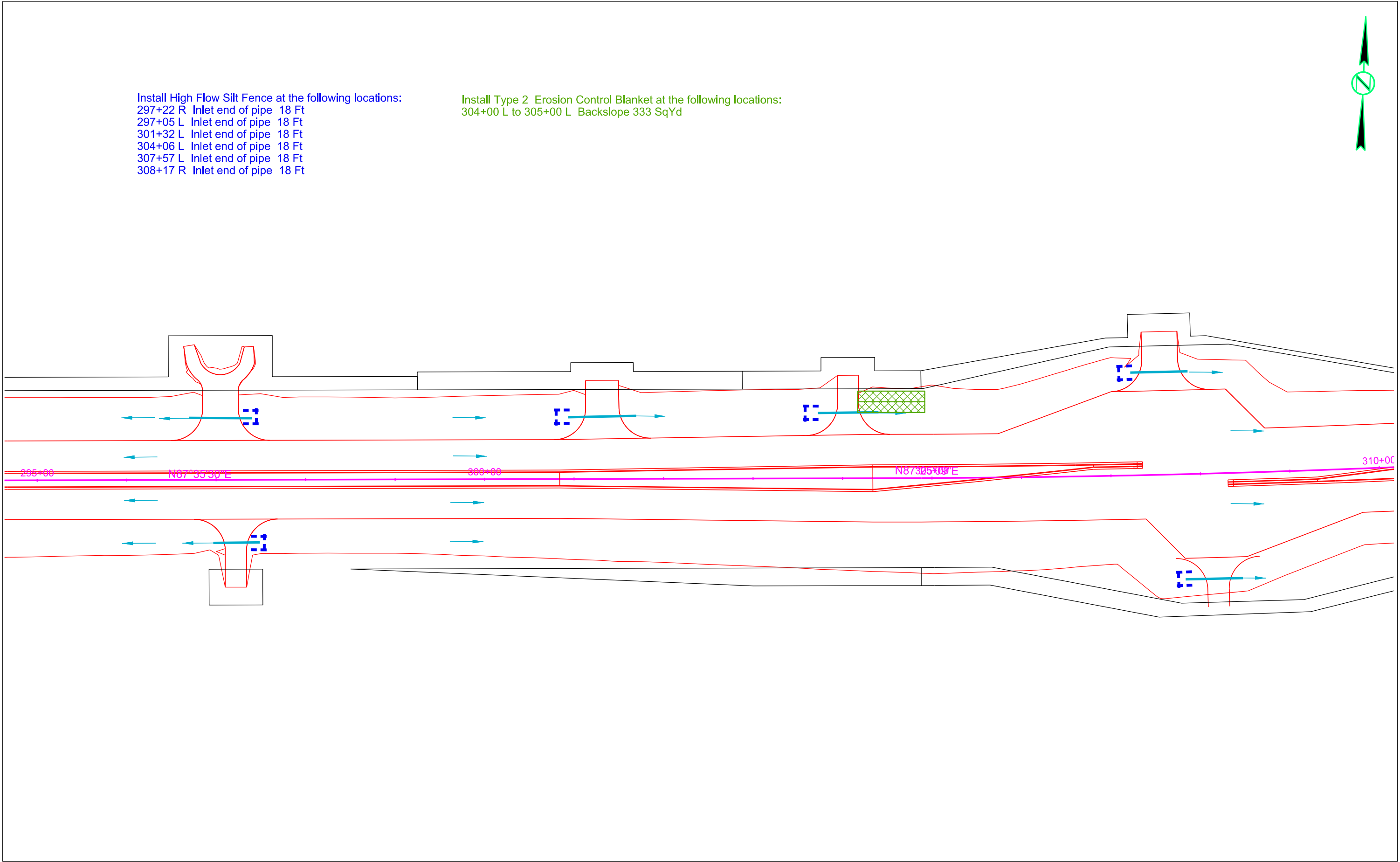
All costs for furnishing, installing, maintaining, and removal of the construction entrance including equipment, labor, materials, and incidentals will be included in the contract unit price per each for "Construction Entrance".

The following table is a list of known construction entrance products available for use:

| Product | Manufacturer |
|---|---|
| Grizzly Rumble Grate (10' width and 24' length required) | Trackout Control, LLC Tempe, AZ Phone: 1-800-761-0056 www.trackoutcontrol.com |
| Pro Grid (12' width and 24' length including combination of grids and ramps required) | Pro-Tec Equipment, Inc. Charlotte, MI Phone: 1-800-292-1225 www.pro-tecequipment.com |
| Tracking Pad (12' width and 24' length (2 – 12'x12' pads) and 2 – 4'x4' turning flares) | Tracking Pads LLC Denver, CO Phone: 1-719-371-3791 www.trackingpads.com |
| FODS Trackout Control Mat (12' width and 5 mats To get a 35' length) | FODS, LLC Denver, CO Phone: 1-844-200-3637 getfods.com |
| DuraDeck and MegaDeck HD An adequate quantity is needed to prevent tires from becoming muddy (does not remove mud) | Signature Systems Group, LLC Flower Mound, TX Phone: 1-800-709-8151 www.duradeckmats.com |

Install High Flow Silt Fence at the following locations:
 297+22 R Inlet end of pipe 18 Ft
 297+05 L Inlet end of pipe 18 Ft
 301+32 L Inlet end of pipe 18 Ft
 304+06 L Inlet end of pipe 18 Ft
 307+57 L Inlet end of pipe 18 Ft
 308+17 R Inlet end of pipe 18 Ft

Install Type 2 Erosion Control Blanket at the following locations:
 304+00 L to 305+00 L Backslope 333 SqYd



Plot Scale - 1:100

Plotted From - TRPR17200

File - U:\trpr\linc692\295sec.dgn

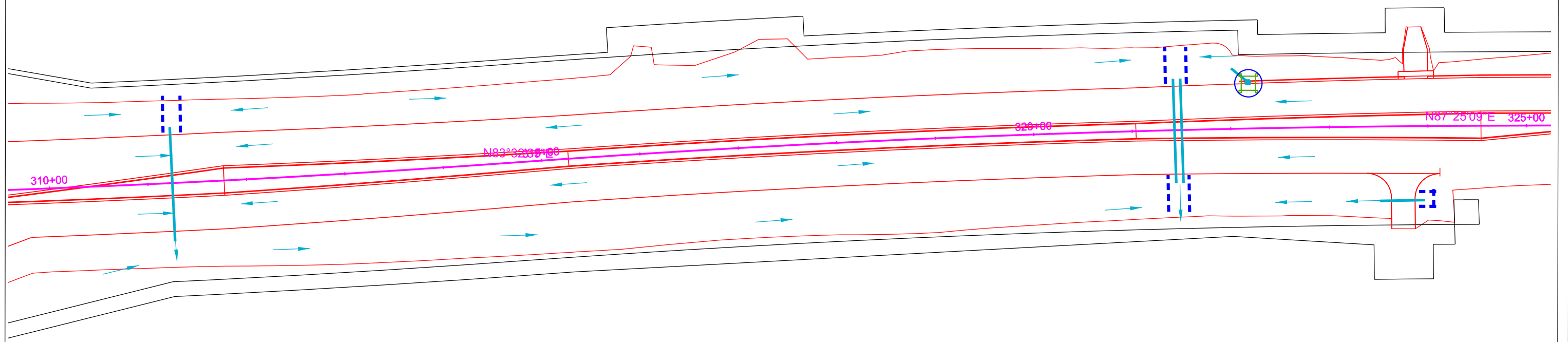


Install High Flow Silt Fence at the following locations:
 311+25 L Across ditch at inlet end of pipe 30 Ft
 321+46 L Across ditch at inlet and outlet end of pipe (60 Ft each end) 120 Ft
 323+75 R Inlet end of pipe 18 Ft

Install Interim Sediment Control at Inlets, Manholes, and Junction
 Boxes before the placement of surfacing at the following locations:
 322+18 L 18 Ft High Flow Silt Fence 24 Ft Sediment Filter Bags

Install Sediment Control at
 Inlets with Frames and Grates
 after the placement of surfacing
 at the following locations:
 322+18 L 1 Each

Plot Scale - 1:100



Plotted From - TRPR17200

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SECTION F – ESTIMATE OF QUANTITIES

| BID ITEM NUMBER | ITEM | QUANTITY | UNIT |
|-----------------|---|-----------|------|
| 120E6200 | Water for Granular Material | 2,243.8 | MGal |
| 260E1010 | Base Course | 13,361.4 | Ton |
| 260E1030 | Base Course, Salvaged | 22,739.2 | Ton |
| 260E1080 | Base Course, Salvaged, State Furnished | 18,360.0 | Ton |
| 260E2010 | Gravel Cushion | 32,547.3 | Ton |
| 260E2030 | Gravel Cushion, Salvaged | 55,287.2 | Ton |
| 260E2080 | Gravel Cushion, Salvaged, State Furnished | 44,640.0 | Ton |
| 270E0220 | Blend and Stockpile Granular Material | 78,026.4 | Ton |
| 320E0008 | PG 64-34 Asphalt Binder | 893.5 | Ton |
| 320E1050 | Class E Asphalt Concrete | 15,683.4 | Ton |
| 320E3000 | Compaction Sample | 6 | Each |
| 320E5010 | Saw and Seal Shoulder Joint | 83,191 | Ft |
| 330E0010 | MC-70 Asphalt for Prime | 115.8 | Ton |
| 330E0100 | SS-1h or CSS-1h Asphalt for Tack | 27.8 | Ton |
| 330E0210 | SS-1h or CSS-1h Asphalt for Flush Seal | 18.4 | Ton |
| 330E1000 | Blotting Sand for Prime | 10.0 | Ton |
| 330E2000 | Sand for Flush Seal | 276.9 | Ton |
| 332E0010 | Cold Milling Asphalt Concrete | 119,474 | SqYd |
| 380E0050 | 8" Nonreinforced PCC Pavement | 291,280.3 | SqYd |
| 380E2564 | 4" Barrier Type Colored Median PCC Pavement | 59,138.5 | SqYd |
| 380E3040 | 8" PCC Driveway Pavement | 1,839.8 | SqYd |
| 380E6000 | Dowel Bar | 162,859 | Each |
| 380E6110 | Insert Steel Bar in PCC Pavement | 1,057 | Each |
| 380E6450 | Saw Joint in PCC Pavement | 2,371.9 | Ft |

SURFACING THICKNESS DIMENSIONS

The plans shown spread rates will be applied even though the thickness may vary from that shown on the plans.

At those locations where material must be placed to achieve a required elevation, the depth/quantity may be varied to achieve the required elevation.

EXISTING PCC PAVEMENT

Sta. 48+70.6 to Sta. 70+90.0

The existing mainline and shoulders are 8-inch PCC Pavement, average 60 feet wide.

The existing transverse contraction joints have a spacing of 15' with 1 ¼" x 18" Epoxy Coated Dowel Bars at a spacing of 12".

The longitudinal joints have 30" long #5 Epoxy Coated Deformed Tie Bars at a spacing of 48".

Sta. 70+90.0 to Sta. 119+91.5

The existing 9-inch P.C.C. Pavement mainline is typically 24 feet wide.

The existing transverse contraction joints have a spacing of 61.5'. Existing transverse contraction joints has 1 ¼" x 18" plain steel dowel bars at a 12" c-to-c spacing. The centerline longitudinal joint has 30" long 5/8" Deformed Steel Tie bars at a of 48" c-to-c spacing.

Welded wire fabric weighing not less than 60 lbs. per 100 sq.ft. Longitudinal wires to be #1 gauge at 6" c-to-c spacing and transverse vires to be #4 gauge at 12" c-to-c spacing.

Sta. 119+91.5 to Sta. 425+77.7

The existing 9-6-9-inch P.C.C. Pavement mainline is typically 20 feet wide.

The existing transverse contraction joints have a spacing of 40'. Existing transverse contraction joints has 30" long 3/4" smooth bars at a 34" c-to-c spacing. The centerline longitudinal joint has 48" long 1/2" Deformed Steel Tie bars at a of 60" c-to-c spacing.

Welded wire fabric weighing not less than 42 lbs. per 100 sq.ft. Longitudinal and transverse wires to be 6" c-to-c spacing in both directions.

Sta. 425+77.7 to Sta. 473+32.2

The existing mainline and shoulders are 8-inch PCC Pavement, average 52 feet wide.

The existing transverse contraction joints have a spacing of 20' with 1 ¼" x 18" Epoxy Coated Dowel Bars at a spacing of 12".

The longitudinal joints have 30" long #5 Epoxy Coated Deformed Tie Bars at a spacing of 48".

SAW JOINT IN PCC PAVEMENT

Prior to the removal of in place PCC Pavement, the existing pavement will be sawed full depth to a true line with a vertical face. See typical sections. If approved by the Engineer, the Contractor may elect to use a different method to create this vertical face. All costs to saw joint will be incidental to the contract unit price per foot for Saw Joint in PCC Pavement.

| | | | |
|-----------------------|-----------------|-------|--------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
| | NH 0018(157)438 | F2 | F93 |

Revised: 28apr23, RML

JOINT SAWING TABLE

| Station | | Station | PCC Pavement Joint (feet) |
|--------------|----|---------|---------------------------|
| Lt. Shoulder | | | |
| 48+70.6 | to | 63+04.9 | 1,434.3 |
| Rt. Shoulder | | | |
| 53+67.3 | to | 63+04.9 | 937.6 |
| Total = | | | 2,371.9 |

RECYCLED CONCRETE AGGREGATE (RCA)

Portland cement concrete pavement removed from the mainline within the project limits may be crushed and reused as granular material provided it meets the requirements for the granular material it is replacing.

All in-place rebar will be separated and removed from the RCA.

There is an estimated 35,644.9 tons of PCC Pavement on this project that can be crushed and reused. This quantity is based on a unit weight of 118 lbs. per cubic foot for the recycled concrete aggregate.

The Contractor will dispose of the material (including existing rebar) not utilized on the project at a site approved by the Engineer.

Payment for the recycled concrete aggregate will be at the contract unit price per ton for the granular material that it is replacing.

COLD MILLING ASPHALT CONCRETE

The Los Angeles Abrasion Loss value on the aggregate used for the in-place asphalt concrete was 20 This value was obtained from testing during construction of the in-place asphalt concrete.

Cold milling asphalt concrete will be done according to the typical section(s). In areas where maintenance patches have raised and/or widened the road, additional asphalt concrete will be milled to provide a uniform typical section from centerline to the edge of the finished shoulder. These areas also include farm, residential, field entrances and intersecting roads. Milling will be daylighted to the outside edge of the roadway. Any additional costs associated with this additional cold milling will be incidental to the contract unit price per square yard for Cold Milling Asphalt Concrete.

An estimated 23,256.8 tons of cold milled asphalt concrete material will be blended with the Salvaged and Stockpiled Asphalt Mix and Granular Base Material and will be used on this project as Base Course, Salvaged or Gravel Cushion, Salvaged at the locations identified in the plans.

Field conditions will vary from that given in the typical section(s). Therefore, the Contractor may be required to adjust the mill depth, as necessary, if approved by the Engineer.

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BASE COURSE, SALVAGED

Base Course, Salvaged will be obtained from the stockpile provided by the Contractor from the blended material produced on this project and may be used without further gradation testing.

All other requirements for Base Course, Salvaged will apply.

GRAVEL CUSHION, SALVAGED

Gravel Cushion, Salvaged will be obtained from the stockpile provided by the Contractor from the blended material produced on this project and may be used without further gradation testing.

All other requirements for Gravel Cushion, Salvaged will apply.

GRAVEL CUSHION, SALVAGED, STATE FURNISHED

Gravel Cushion, Salvaged, State Furnished estimated at 44,640.0 tons of granular material will be obtained from the stockpile site located Southeast corner of Section 33, Township 96 North, Range 49 West, Lincoln County, SD (Jct SD46 & SD11) and the Lennox SDDOT Maintenance Yard located at I-29 Exit 62 in the SW ¼ of Section 18, Township 98 North, Range 50 West, Lincoln County, SD.

An estimated 35,000 tons of salvaged material is located at Jct SD46 & SD11 and 28,000 tons of salvaged material is located at the Lennox Maintenance Yard

No gradation testing will be required for the Gravel Cushion, Salvaged, State Furnished material.

The Gravel Cushion, Salvaged, State Furnished is royalty free to the Contractor.

All other requirements for Gravel Cushion, Salvaged will apply.

BASE COURSE, SALVAGED, STATE FURNISHED

Base Course, Salvaged, State Furnished estimated at 18,360.0 tons of granular material will be obtained from the stockpile site located Southeast corner of Section 33, Township 96 North, Range 49 West, Lincoln County, SD (Jct SD46 & SD11) and the Lennox SDDOT Maintenance Yard located at I-29 Exit 62 in the SW ¼ of Section 18, Township 98 North, Range 50 West, Lincoln County, SD.

An estimated 35,000 tons of salvaged material is located at Jct SD46 & SD11 and 28,000 tons of salvaged material is located at the Lennox Maintenance Yard

No gradation testing will be required for the Gravel Cushion, Salvaged, State Furnished material.

The Base Course, Salvaged, State Furnished is royalty free to the Contractor.

All other requirements for Base Course, Salvaged will apply.

CLASS E ASPHALT CONCRETE

Mineral Aggregate for Class E Asphalt Concrete will conform to the requirements for Class E, Type 1.

When directed by the Engineer, the Contractor will saw and remove a total of three undamaged compaction cores (4" dia. min.) per asphalt concrete lift from designated area(s) and repair the hole(s) to the satisfaction of the Engineer. All costs associated with the compaction cores will be incidental to the contract unit price per each for Compaction Sample.

All other requirements for Class E will apply.

BLOTTING SAND FOR PRIME

Included in the Estimate of Quantities are 10 tons of Blotting Sand for Prime to be used where necessary for maintenance of traffic as directed by the Engineer. (Rate = 10 pounds per square yard).

GRANULAR MATERIAL BELOW CONCRETE MEDIAN PAVEMENT

The granular material below the concrete median pavement will be Base Course, Base Course, Salvaged, or Base Course, Salvaged, State Furnished. The Base Course, Salvaged, or Base Course, Salvaged, State Furnished will be obtained from the stockpile provided by the Contractor or furnished by the State and may be used without further gradation testing. Base Course will be furnished by the Contractor and will meet the requirements of Section 882.2 prior to use.

Base Course, Base Course, Salvaged, or Base Course, Salvaged, State Furnished placed beneath the concrete median pavement will be limited to the quantity necessary to construct a maximum of a 4-inch compacted layer.

All other requirements for Base Course, Salvaged will apply.

FLUSH SEAL

Application of flush seal will be completed within 10 working days following completion of the asphalt concrete surfacing.

Application of flush seal may be eliminated by the Engineer. If the paved surface remains tight, the Engineer will notify the Contractor as soon as possible that the flush seal is unnecessary.

Summary of Class E Asphalt Concrete Compaction

| Location-Description | With Specified Density Tons | Without Specified Density Tons |
|---|--------------------------------|-----------------------------------|
| Left Shoulder (3" depth) | | |
| Sta. 46+80.9 to Sta. 466+09.9 | 5,080.5 | |
| Right Shoulder (3" depth) | | |
| Sta. 53+67.3 to Sta. 466+29.5 | 5,062.5 | |
| Lt. U-Turn Areas (2 Lifts @ 3" each) | | |
| 7 Locations | 1,223.0 / 1,223.0 | |
| Rt. U-Turn Areas (2 Lifts @ 3" each) | | |
| 7 Locations | 1,285.0 / 1,285.0 | |
| Miscellaneous Area | | |
| Intersecting Roads – 16 each | | 464.2 |
| Entrances – 2 each | | 60.2 |
| TOTAL = | 15,159.0 | 524.4 |

RATES OF MATERIALS

The Estimate of Surfacing Quantities is based on the following quantities of materials per **STATION**.

US18 MAINLINE

| Station | to | Station |
|----------|----|----------|
| 67+37.3 | to | 86+14.5 |
| 100+57.9 | to | 109+53.3 |
| 130+20.5 | to | 139+08.7 |
| 153+52.1 | to | 156+55.3 |
| 159+57.2 | to | 165+29.8 |
| 180+14.8 | to | 191+94.5 |
| 206+37.9 | to | 215+22.7 |
| 235+85.8 | to | 244+66.1 |
| 259+09.5 | to | 270+89.4 |
| 285+88.1 | to | 300+83.9 |
| 315+27.3 | to | 321+03.8 |
| 341+72.6 | to | 349+03.7 |
| 363+47.1 | to | 375+18.8 |
| 390+03.2 | to | 405+26.7 |
| 419+70.1 | to | 425+05.8 |
| 445+64.1 | to | 449+32.6 |
| 452+82.5 | to | 457+12.3 |

Gravel Cushion or Gravel Cushion, Salvaged 284.38 tons.

Water for Granular Material at the rate of 3.41 M. Gallons.

The exact proportions of these materials will be determined on construction.

US18 MAINLINE

| Station | to | Station |
|----------|----|----------|
| 89+64.5 | to | 97+07.9 |
| 113+03.3 | to | 126+70.5 |
| 142+58.7 | to | 150+02.1 |
| 168+79.8 | to | 176+64.8 |
| 195+44.5 | to | 202+87.9 |
| 218+72.7 | to | 224+88.9 |
| 248+16.1 | to | 255+59.5 |
| 274+39.4 | to | 282+38.1 |
| 304+33.9 | to | 311+77.3 |
| 326+03.1 | to | 338+22.6 |
| 352+53.7 | to | 359+97.1 |
| 378+68.8 | to | 386+53.2 |
| 408+76.7 | to | 416+20.1 |
| 428+55.8 | to | 434+70.6 |

Gravel Cushion or Gravel Cushion, Salvaged 313.54 tons.

Water for Granular Material at the rate of 3.76 M. Gallons.

The exact proportions of these materials will be determined on construction.

Revised: 28apr23, RML

The Estimate of Surfacing Quantities is based on the following quantities of materials per **MILE**.

US18 OUTSIDE SHOULDERS

| Station | to | Station | |
|----------|----|----------|--------|
| 48+70.6 | to | 144+45.4 | Lt Sh. |
| 147+27.5 | to | 156+55.3 | Lt Sh. |
| 159+57.2 | to | 197+42.5 | Lt Sh. |
| 199+83.8 | to | 224+89.2 | Lt Sh. |
| 225+21.4 | to | 250+03.8 | Lt Sh. |
| 252+86.8 | to | 305+73.9 | Lt Sh. |
| 308+73.0 | to | 322+09.6 | Lt Sh. |
| 326+03.1 | to | 354+49.4 | Lt Sh. |
| 356+93.0 | to | 410+34.3 | Lt Sh. |
| 413+16.0 | to | 434+70.6 | Lt Sh. |
| 435+09.2 | to | 460+31.1 | Lt Sh. |
| 462+91.1 | to | 466+09.9 | Lt Sh. |
| 53+67.3 | to | 92+38.9 | Rt Sh. |
| 95+21.0 | to | 145+62.7 | Rt Sh. |
| 148+04.1 | to | 198+48.6 | Rt Sh. |
| 200+89.9 | to | 250+90.5 | Rt Sh. |
| 253+71.6 | to | 307+26.7 | Rt Sh. |
| 309+95.8 | to | 355+58.1 | Rt Sh. |
| 357+98.1 | to | 411+53.7 | Rt Sh. |
| 414+31.2 | to | 449+32.6 | Rt Sh. |
| 452+82.4 | to | 466+29.5 | Rt Sh. |

Base Course or Base Course, Salvaged 1,067 tons.

Water for Granular Material at the rate of 12.8 M. Gallons.

MC-70 Asphalt for Prime at the rate of 6.3 ton applied 9.0 feet wide (Rate = 0.30 gallon per square yard).

SS-1h or CSS-1h Asphalt for Tack at the rate of 1.3 ton applied 8.5 feet wide (Rate = 0.06 gallon per square yard).

CLASS E ASPHALT CONCRETE

| | |
|-------------------------|-----------------|
| Crushed Aggregate | 645 tons |
| PG 64-34 Asphalt Binder | 39 tons |
| Total | 684 tons |

FLUSH SEAL

SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 1.0 ton applied 8.0 feet wide (Rate = 0.05 gallon per square yard).

Sand for Flush Seal at the rate of 14 ton applied 6 feet wide (Rate = 8.0 lbs. per square yard).

The exact proportions of these materials will be determined on construction.

Revised: 28apr23, RML

TABLE OF ADDITIONAL QUANTITIES

| LOCATION | | | | Water For Granular Material | Gravel Cushion, Gravel Cushion, Salvaged or Gravel Cushion, Salvaged, State Furnished | Base Course, Base Course, Salvaged or Base Course, Salvaged, State Furnished | Class E Asphalt Concrete | | PG 64-34 Asphalt Binder | | Asphalt For Prime | Asphalt For Tack | | Asphalt For Flush Seal | Sand For Flush Seal |
|----------------------------|-------|---------|-------|-----------------------------|---|--|--------------------------|----------|-------------------------|----------|-------------------|------------------|----------|------------------------|---------------------|
| | | | | | | | 1st Lift | 2nd Lift | 1st Lift | 2nd Lift | | 1st Lift | 2nd Lift | | |
| Station to Station | | | | (MGal) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | |
| MAINLINE | | | | | | | | | | | | | | | |
| 48 + 70.60 to 63 + 04.90 | 12.4 | 1,035.4 | | | | | | | | | | | | | |
| 53 + 67.30 to 63 + 04.90 | 8.1 | 676.9 | | | | | | | | | | | | | |
| 64 + 04.90 to 67 + 37.20 | 109.4 | 9,115.4 | | | | | | | | | | | | | |
| 86 + 14.50 to 89 + 64.50 | 12.6 | 1,046.4 | | | | | | | | | | | | | |
| 97 + 07.90 to 100 + 57.90 | 12.6 | 1,046.4 | | | | | | | | | | | | | |
| 109 + 53.30 to 113 + 03.30 | 12.6 | 1,046.4 | | | | | | | | | | | | | |
| 126 + 70.50 to 130 + 20.50 | 12.6 | 1,046.4 | | | | | | | | | | | | | |
| 139 + 08.70 to 142 + 58.70 | 12.6 | 1,046.4 | | | | | | | | | | | | | |
| 150 + 02.10 to 153 + 52.10 | 12.6 | 1,046.4 | | | | | | | | | | | | | |
| 156 + 55.30 to 159 + 57.20 | 10.4 | 866.6 | | | | | | | | | | | | | |
| 165 + 29.80 to 168 + 79.80 | 12.6 | 1,046.4 | | | | | | | | | | | | | |
| 176 + 64.80 to 180 + 14.80 | 12.6 | 1,046.4 | | | | | | | | | | | | | |
| 191 + 94.50 to 195 + 44.50 | 12.6 | 1,046.4 | | | | | | | | | | | | | |
| 202 + 87.90 to 206 + 37.90 | 12.6 | 1,046.4 | | | | | | | | | | | | | |
| 215 + 22.70 to 218 + 72.70 | 12.6 | 1,046.4 | | | | | | | | | | | | | |
| 224 + 88.90 to 235 + 85.80 | 46.9 | 3,905.6 | | | | | | | | | | | | | |
| 244 + 66.10 to 248 + 16.10 | 12.6 | 1,046.4 | | | | | | | | | | | | | |
| 255 + 59.50 to 259 + 09.50 | 12.6 | 1,046.4 | | | | | | | | | | | | | |
| 270 + 89.40 to 274 + 39.40 | 12.6 | 1,046.4 | | | | | | | | | | | | | |
| 282 + 38.10 to 285 + 88.10 | 12.6 | 1,046.4 | | | | | | | | | | | | | |
| 300 + 83.90 to 304 + 33.90 | 12.6 | 1,046.4 | | | | | | | | | | | | | |
| 311 + 77.30 to 315 + 27.30 | 12.6 | 1,046.4 | | | | | | | | | | | | | |
| 321 + 03.80 to 326 + 03.10 | 14.6 | 1,217.9 | | | | | | | | | | | | | |
| 338 + 22.60 to 341 + 72.60 | 12.6 | 1,046.4 | | | | | | | | | | | | | |
| 349 + 03.70 to 352 + 53.70 | 12.6 | 1,046.4 | | | | | | | | | | | | | |
| 359 + 97.10 to 363 + 47.10 | 12.6 | 1,046.4 | | | | | | | | | | | | | |
| 375 + 18.80 to 378 + 68.80 | 12.6 | 1,046.4 | | | | | | | | | | | | | |
| 386 + 53.20 to 390 + 03.20 | 12.6 | 1,046.4 | | | | | | | | | | | | | |
| 405 + 26.70 to 408 + 76.70 | 12.6 | 1,046.4 | | | | | | | | | | | | | |
| 416 + 20.10 to 419 + 70.10 | 12.6 | 1,046.4 | | | | | | | | | | | | | |
| 425 + 05.80 to 428 + 55.80 | 12.6 | 1,046.4 | | | | | | | | | | | | | |
| 434 + 70.60 to 445 + 64.10 | 46.9 | 3,906.8 | | | | | | | | | | | | | |
| 449 + 32.60 to 452 + 82.40 | 12.0 | 1,004.1 | | | | | | | | | | | | | |
| 457 + 12.30 to 473 + 32.30 | 50.6 | 4,215.2 | | | | | | | | | | | | | |
| Rt. U-Turn Areas | | | | | | | | | | | | | | | |
| 92 + 38.90 to 95 + 21.00 | 4.8 | | 398.2 | 203.1 | 203.1 | 11.6 | 11.6 | 1.5 | 0.3 | 0.3 | 0.3 | 0.3 | 4.7 | | |
| 145 + 62.70 to 148 + 04.10 | 3.8 | | 318.6 | 163.6 | 163.6 | 9.3 | 9.3 | 1.2 | 0.3 | 0.3 | 0.2 | 0.2 | 3.7 | | |
| 198 + 48.60 to 200 + 89.90 | 3.8 | | 318.6 | 163.6 | 163.6 | 9.3 | 9.3 | 1.2 | 0.3 | 0.3 | 0.2 | 0.2 | 3.7 | | |
| 250 + 90.50 to 253 + 71.60 | 4.8 | | 397.6 | 202.8 | 202.8 | 11.6 | 11.6 | 1.5 | 0.3 | 0.3 | 0.3 | 0.3 | 4.7 | | |
| 307 + 26.70 to 309 + 95.80 | 4.6 | | 379.9 | 190.1 | 190.1 | 10.8 | 10.8 | 1.4 | 0.3 | 0.3 | 0.3 | 0.3 | 4.4 | | |
| 355 + 58.10 to 357 + 98.10 | 3.8 | | 317.6 | 163.0 | 163.0 | 9.3 | 9.3 | 1.2 | 0.3 | 0.3 | 0.2 | 0.2 | 3.7 | | |
| 411 + 53.72 to 414 + 31.23 | 4.8 | | 402.1 | 198.8 | 198.8 | 11.3 | 11.3 | 1.5 | 0.3 | 0.3 | 0.3 | 0.3 | 4.6 | | |

TABLE OF ADDITIONAL QUANTITIES (CONTINUED)

Revised: 28apr23, RML

| LOCATION Station to Station | Water For Granular Material | Gravel Cushion, Gravel Cushion, Salvaged or Gravel Cushion, Salvaged, State Furnished | Base Course, Base Course, Salvaged or Base Course, Salvaged, State Furnished | Class E Asphalt Concrete | | PG 64-34 Asphalt Binder | | Asphalt For Prime | Asphalt For Tack | | Asphalt For Flush Seal | Sand For Flush Seal |
|--------------------------------------|-----------------------------|---|--|--------------------------|----------------|-------------------------|----------------|-------------------|------------------|----------------|------------------------|---------------------|
| | (MGal) | (Ton) | (Ton) | 1st Lift (Ton) | 2nd Lift (Ton) | 1st Lift (Ton) | 2nd Lift (Ton) | (Ton) | 1st Lift (Ton) | 2nd Lift (Ton) | (Ton) | (Ton) |
| Entrances | | | | | | | | | | | | |
| 40' Entrances - 15 ea | 13.5 | | 1125.0 | | | | | | | | | |
| 36' Entrances - 2 ea | 1.6 | | 136.0 | | | | | | | | | |
| 30' Entrances - 3 ea | 2.0 | | 168.0 | | | | | | | | | |
| 24' Entrance - 35 ea | 18.9 | | 1575.0 | | | | | | | | | |
| Entrance @ Sta. 57+70 Lt. | 0.7 | 55.9 | | | | | | | | | | |
| Entrance @ Sta. 57+85 Rt. | 0.7 | 61.6 | | | | | | | | | | |
| Entrance @ Sta. 158+30 Lt. | 0.5 | | 45.0 | 12.0 | | 0.7 | | 0.1 | | | | 0.3 |
| Entrance @ Sta. 308+17 Rt. | 0.5 | | 45.0 | 34.0 | | 2.0 | | 0.2 | 0.1 | | | 1.0 |
| Entrance @ Sta. 347+26 Lt. | 0.7 | 61.1 | | | | | | | | | | |
| Entrance @ Sta. 398+24 Lt. | 0.7 | 55.0 | | | | | | | | | | |
| Entrance @ Sta. 404+22 Lt. | 0.7 | 54.5 | | | | | | | | | | |
| Entrance @ Sta. 452+09 Rt. | 0.5 | | 45.0 | 14.2 | | 0.8 | | 0.1 | | | | 0.3 |
| Entrance @ Sta. 452+31 Lt. | 1.1 | 90.7 | | | | | | | | | | |
| ADDITIONAL QUANTITIES TOTAL = | 1,097.8 | 52,701.9 | 38,665.4 | 5,557.9 | | 316.2 | | 22.5 | 8.6 | | 3.6 | 69.7 |

Application Rates: PG 64-34 Asphalt Binder for Class E Asphalt Concrete at 5.7%
 SS-1h or CSS-1h Asphalt for Tack rate = 0.06 gallon per square yard
 SS-1h or CSS-1h Asphalt for Flush Seal rate = 0.05 gallon per square yard
 Sand for Flush Seal rate = 8.00 lbs. per square yard

Surfacing for Intersecting Roads and Entrances

| Intersecting Roads | Entrances | | | | | | |
|--|--|---|--|---|--|---|---|
| 3" Class E Asphalt Concrete and 6" Base Course or Base Course, Salvaged | 8" PCC Driveway Pavement and 5" Gravel Cushion or Gravel Cushion, Salvaged | 40' Entrance - 4" Base Course or Base Course, Salvaged | 36' Entrance - 4" Base Course or Base Course, Salvaged | 30' Entrance - 4" Base Course or Base Course, Salvaged | 24' Entrance - 4" Base Course or Base Course, Salvaged | 3" Class E Asphalt Concrete and 4" Base Course or Base Course, Salvaged | |
| Sta. 66+86 Lt. Sta. 66+88 Rt. Sta. 119+88 Lt. Sta. 119+90 Rt. Sta. 172+72 Lt. Sta. 172+74 Rt. Sta. 225+51 Lt. Sta. 225+52 Rt. Sta. 278+31 Lt. Sta. 278+45 Rt. Sta. 331+36 Lt. Sta. 331+36 Rt. Sta. 382+63 Lt. Sta. 382+63 Rt. Sta. 435+30 Rt. Sta. 435+40 Lt. | Sta. 57+70 Lt. Sta. 57+86 Rt. Sta. 225+51 Lt. Sta. 347+26 Lt. Sta. 398+26 Lt. Sta. 404+15 Lt. Sta. 435+40 Lt. Sta. 452+28 Lt. | Sta. 92+98 Lt. Sta. 93+38 Rt. Sta. 123+56 Rt. Sta. 146+30 Lt. Sta. 189+08 Lt. Sta. 251+86 Rt. Sta. 251+89 Lt. Sta. 297+05 Lt. Sta. 307+57 Lt. Sta. 369+17 Rt. Sta. 412+46 Rt. Sta. 444+78 Rt. Sta. 461+60 Lt. Sta. 461+61 Rt. Sta. 467+31 Lt. | Sta. 82+129 Lt. Sta. 301+32 Lt. | Sta. 225+51 - 845 Lt. & Bk. Sta. 341+96 Lt. Sta. 393+37 Rt. | Sta. 78+06 Rt. Sta. 98+45 Lt. Sta. 109+34 Rt. Sta. 119+55 - 208' Rt. & Bk. Sta. 128+75 Rt. Sta. 162+00 Lt. Sta. 166+14 Rt. Sta. 192+21 Rt. Sta. 204+20 Rt. Sta. 210+81 Rt. Sta. 217+37 Rt. Sta. 235+66 Rt. Sta. 239+88 Lt. Sta. 240+03 Rt. Sta. 267+51 Lt. Sta. 267+67 Rt. Sta. 284+94 Rt. | Sta. 291+75 Rt. Sta. 293+56 Lt. Sta. 297+22 Rt. Sta. 304+06 Lt. Sta. 323+74 Rt. Sta. 323+87 Lt. Sta. 331+47 - 136' Lt. & Ah. Sta. 347+53 Rt. Sta. 362+83 Lt. Sta. 369+87 Lt. Sta. 384+56 Lt. Sta. 385+59 Rt. Sta. 389+77 Lt. Sta. 401+04 Lt. Sta. 406+30 Lt. Sta. 412+11 Lt. Sta. 448+19 Lt. Sta. 467+95 Rt. | Sta. 158+30 Lt. Sta. 308+17 Rt. Sta. 452+09 Rt. |

TYPICAL SURFACING SECTIONS

| | | | |
|-----------------------|-----------------|-------|--------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
| | NH 0018(157)438 | F18 | F93 |

Plotting Date: 05/03/2023

Revised: 28Apr23, RML

Transitions:

Sta. 86+14.61 to Sta. 89+64.61
 Sta. 109+53.36 to Sta. 113+03.36
 Sta. 139+08.74 to Sta. 142+58.74
 Sta. 165+29.91 to Sta. 168+79.96
 Sta. 191+94.54 to Sta. 195+44.54
 * 7.34' to 12.34'

Transitions:

Sta. 215+22.73 to Sta. 218+72.73
 Sta. 244+66.20 to Sta. 248+16.20
 Sta. 270+89.42 to Sta. 274+39.42
 Sta. 300+83.91 to Sta. 304+33.92
 Sta. 321+03.80 to Sta. 324+53.83
 * 7.34' to 12.34'

Transitions:

Sta. 349+03.76 to Sta. 352+53.76
 Sta. 375+18.81 to Sta. 378+68.81
 Sta. 405+26.72 to Sta. 408+76.72
 Sta. 425+05.84 to Sta. 428+55.84
 * 7.34' to 12.34'

Transitions:

Sta. 97+08.01 to Sta. 100+58.01
 Sta. 126+70.53 to Sta. 130+20.53
 Sta. 150+02.14 to Sta. 153+52.14
 Sta. 176+64.91 to Sta. 180+14.91
 Sta. 202+87.94 to Sta. 206+37.94
 * 12.34' to 7.34'

Transitions:

Sta. 232+35.74 to Sta. 235+85.77
 Sta. 255+59.60 to Sta. 259+09.60
 Sta. 282+38.15 to Sta. 285+88.15
 Sta. 311+77.31 to Sta. 315+27.31
 Sta. 338+22.63 to Sta. 341+72.63
 * 12.34' to 7.34'

Transitions:

Sta. 359+97.16 to Sta. 363+47.16
 Sta. 386+53.19 to Sta. 390+03.19
 Sta. 416+20.12 to Sta. 419+70.12
 Sta. 442+14.09 to Sta. 445+64.10
 * 12.34' to 7.34'

Transitions:

Sta. 457+12.07 to Sta. 459+15.61
 * 7.34' to 4.63', Left side only

Section 6
US HWY 18

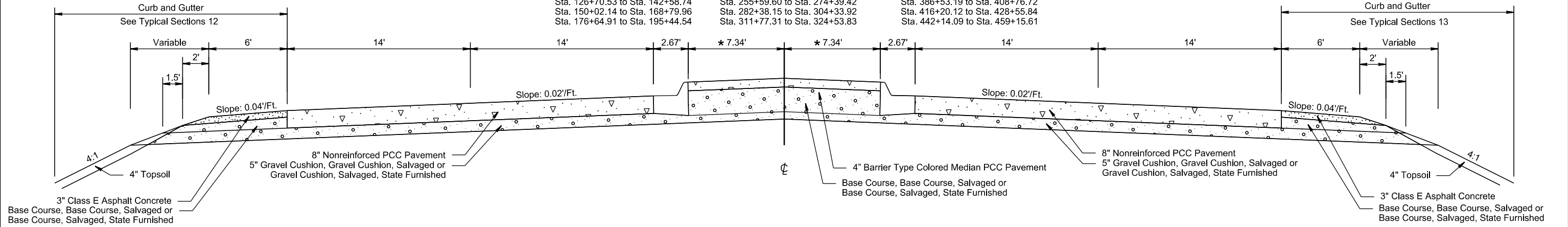
Section 6
US HWY 18

Section 6
US HWY 18

Sta. 69+44.46 to Sta. 89+64.61
 Sta. 97+08.01 to Sta. 113+03.36
 Sta. 126+70.53 to Sta. 142+58.74
 Sta. 150+02.14 to Sta. 168+79.96
 Sta. 176+64.91 to Sta. 195+44.54

Sta. 202+87.94 to Sta. 218+72.73
 Sta. 232+35.74 to Sta. 248+16.20
 Sta. 255+59.60 to Sta. 274+39.42
 Sta. 282+38.15 to Sta. 304+33.92
 Sta. 311+77.31 to Sta. 324+53.83

Sta. 338+22.63 to Sta. 352+53.76
 Sta. 359+97.16 to Sta. 378+68.81
 Sta. 386+53.19 to Sta. 408+76.72
 Sta. 416+20.12 to Sta. 428+55.84
 Sta. 442+14.09 to Sta. 459+15.61



Transitions:

Sta. 89+64.61 to Sta. 92+11.31
 Sta. 113+03.36 to Sta. 115+50.06
 Sta. 142+58.74 to Sta. 145+05.44
 Sta. 168+79.96 to Sta. 171+26.68
 Sta. 195+44.54 to Sta. 197+91.24
 Sta. 218+72.73 to Sta. 221+19.43
 Sta. 248+16.20 to Sta. 250+62.90
 Sta. 274+39.42 to Sta. 276+86.12
 * 24.67' to 2'
 ** 0' to 22.67'

Transitions:

Sta. 304+33.92 to Sta. 306+80.61
 Sta. 324+53.83 to Sta. 327+00.46
 Sta. 352+53.76 to Sta. 350+00.46
 Sta. 378+68.81 to Sta. 381+15.51
 Sta. 408+76.72 to Sta. 411+23.42
 Sta. 428+55.84 to Sta. 431+02.52
 * 24.67' to 2'
 ** 0' to 22.67'

Section 7
US HWY 18

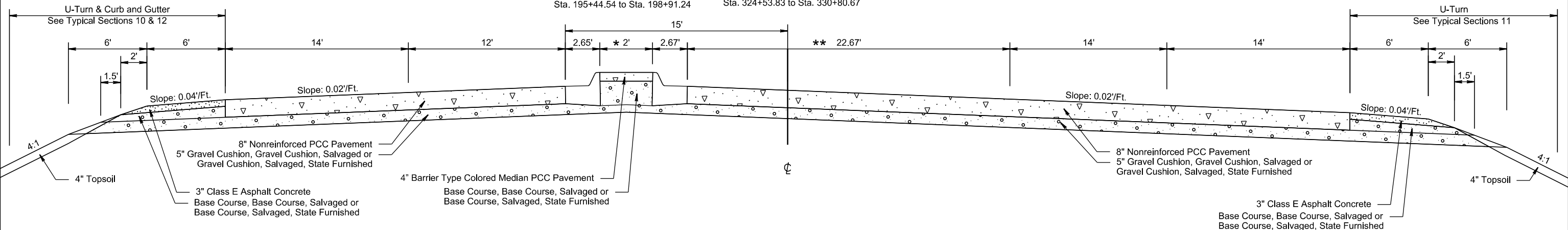
Section 7
US HWY 18

Section 7
US HWY 18

Sta. 89+64.61 to Sta. 92+67.62
 Sta. 113+03.36 to Sta. 119+23.45
 Sta. 142+58.74 to Sta. 146+05.44
 Sta. 168+79.96 to Sta. 172+22.10
 Sta. 195+44.54 to Sta. 198+91.24

Sta. 218+72.73 to Sta. 225+01.92
 Sta. 248+16.20 to Sta. 251+62.90
 Sta. 274+39.42 to Sta. 277+86.12
 Sta. 304+33.92 to Sta. 307+35.58
 Sta. 324+53.83 to Sta. 330+80.67

Sta. 352+53.76 to Sta. 356+00.46
 Sta. 378+68.81 to Sta. 382+01.56
 Sta. 408+76.72 to Sta. 411+95.46
 Sta. 428+55.84 to Sta. 434+83.56



PLOT SCALE - 1" = 7.500002'

PLOTTED FROM - TRPR16032

PLOT NAME - 8

FILE - ... \6923_TYPICAL SECTIONS.DGN

TYPICAL SURFACING SECTIONS

| | | | |
|-----------------------|----------------------------|--------------|---------------------|
| STATE OF SOUTH DAKOTA | PROJECT NH 0018(157)438 | SHEET F19 | TOTAL SHEETS F93 |
|-----------------------|----------------------------|--------------|---------------------|

Plotting Date: 05/03/2023
Revised: 28Apr23, RML

PLOT SCALE - 1:7,50002

PLOT NAME - 9

Transitions:
Sta. 226+05.55 to Sta. 230+10.8
Sta. 435+88.62 to Sta. 440+11.2
42'

Sta. 230+10.8 to Sta. 232+91.9
Sta. 440+11.2 to Sta. 442+93.1
42' to 14"

Transitions:
Sta. 94+61.44 to Sta. 97+08.01
Sta. 124+23.96 to Sta. 126+70.53
Sta. 147+55.58 to Sta. 150+02.14
Sta. 174+18.34 to Sta. 176+64.91
Sta. 200+41.38 to Sta. 202+87.94
Sta. 229+89.16 to Sta. 232+35.74
Sta. 253+13.03 to Sta. 255+59.60
Sta. 279+91.69 to Sta. 282+38.15
* 22.67' to 0'
** 2' to 24.67'

Transitions:
Sta. 309+30.74 to Sta. 311+77.31
Sta. 335+76.06 to Sta. 338+22.63
Sta. 357+50.60 to Sta. 359+97.16
Sta. 384+06.63 to Sta. 386+53.19
Sta. 413+73.55 to Sta. 416+20.12
Sta. 439+67.53 to Sta. 442+14.09
* 22.67' to 0'
** 2' to 24.67'

Section 8
US HWY 18
Sta. 93+61.31 to Sta. 97+08.01
Sta. 120+53.19 to Sta. 126+70.53
Sta. 147+02.70 to Sta. 150+02.14
Sta. 173+23.70 to Sta. 176+64.91
Sta. 199+41.24 to Sta. 202+87.94

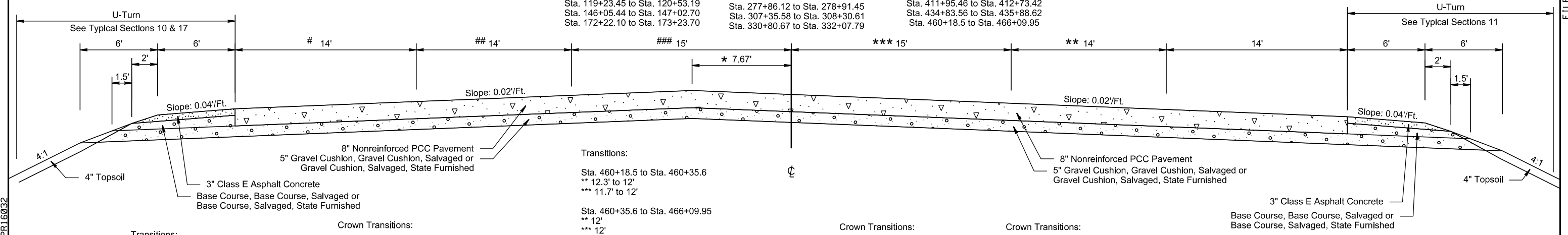
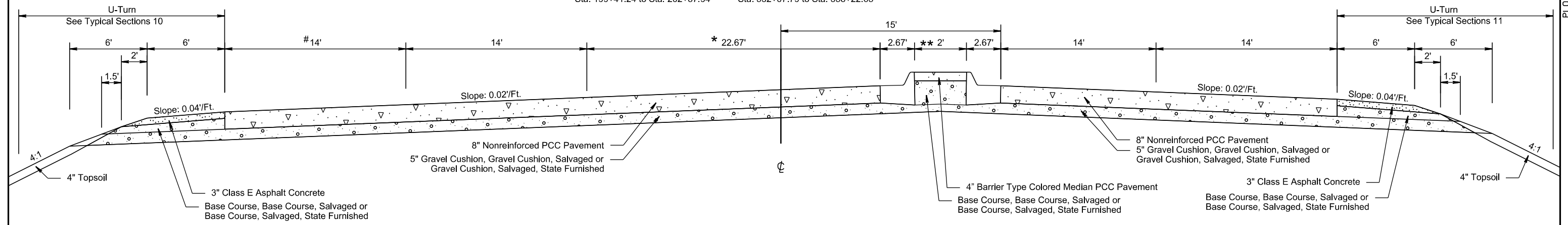
Section 8
US HWY 18
Sta. 226+05.55 to Sta. 232+35.74
Sta. 252+49.85 to Sta. 255+59.60
Sta. 278+91.45 to Sta. 282+38.15
Sta. 308+30.61 to Sta. 311+77.31
Sta. 332+07.79 to Sta. 338+22.63

Section 8
US HWY 18
Sta. 356+50.46 to Sta. 359+97.16
Sta. 383+23.69 to Sta. 386+53.19
Sta. 412+73.42 to Sta. 416+20.12
Sta. 435+88.62 to Sta. 442+14.09

Section 9
US HWY 18
Sta. 66+39.88 to Sta. 67+37.30
Sta. 92+67.62 to Sta. 93+61.31
Sta. 119+23.45 to Sta. 120+53.19
Sta. 146+05.44 to Sta. 147+02.70
Sta. 172+22.10 to Sta. 173+23.70

Section 9
US HWY 18
Sta. 198+91.24 to Sta. 199+41.24
Sta. 225+01.92 to Sta. 226+05.55
Sta. 251+62.90 to Sta. 252+49.85
Sta. 277+86.12 to Sta. 278+91.45
Sta. 307+35.58 to Sta. 308+30.61
Sta. 330+80.67 to Sta. 332+07.79

Section 9
US HWY 18
Sta. 356+00.46 to Sta. 356+50.46
Sta. 382+01.56 to Sta. 383+23.69
Sta. 411+95.46 to Sta. 412+73.42
Sta. 434+83.56 to Sta. 435+88.62
Sta. 460+18.5 to Sta. 466+09.95



Transitions:
Sta. 66+39.88 to Sta. 67+37.30
* 9.2' to 10'

Sta. 225+01.92 to Sta. 226+05.55
Sta. 434+83.56 to Sta. 435+88.62
42'

Crown Transitions:
Sta. 66+39.88 to Sta. 67+37.30
** 9.2' Lt. to 2.67' Lt

Transitions:
Sta. 460+18.5 to Sta. 460+35.6
** 12.3' to 12'
*** 11.7' to 12'

Sta. 460+35.6 to Sta. 466+09.95
** 12'
*** 12'

Sta. 460+18.5 to Sta. 464+22.6
5.9' to 0'

Sta. 464+22.6 to Sta. 465+52.2
14' to 12'

Sta. 465+52.2 to Sta. 466+09.95
12'

Crown Transitions:
Sta. 66+39.88 to Sta. 67+37.30
** 9.2' Rt. to 2.67' Rt

Sta. 92+67.62 to Sta. 93+61.31
Sta. 119+23.45 to Sta. 120+53.19
Sta. 146+05.44 to Sta. 147+02.70
Sta. 172+22.10 to Sta. 173+23.70
Sta. 198+91.24 to Sta. 199+41.24
Sta. 225+01.92 to Sta. 226+05.55
Sta. 251+62.90 to Sta. 252+49.85
* 7.67' Lt. to 7.67' Rt.

Crown Transitions:
Sta. 277+86.12 to Sta. 278+91.45
Sta. 307+35.58 to Sta. 308+30.61
Sta. 330+80.67 to Sta. 332+07.79
Sta. 356+00.46 to Sta. 356+50.46
Sta. 382+01.56 to Sta. 383+23.69
Sta. 411+95.46 to Sta. 412+73.42
Sta. 434+83.56 to Sta. 435+88.62
* 7.67' Lt. to 7.67' Rt.

Sta. 460+18.5 to Sta. 466+09.95
* 0'

PLOTTED FROM - TRPR16032

FILE - ... \6923_TYPICAL SECTIONS.DGN

TYPICAL SURFACING SECTIONS

| | | | |
|-----------------------|-----------------|-------|--------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
| | NH 0018(157)438 | F20 | F93 |

Plotting Date: 05/03/2023

Revised: 28Apr23, RML

Transitions:

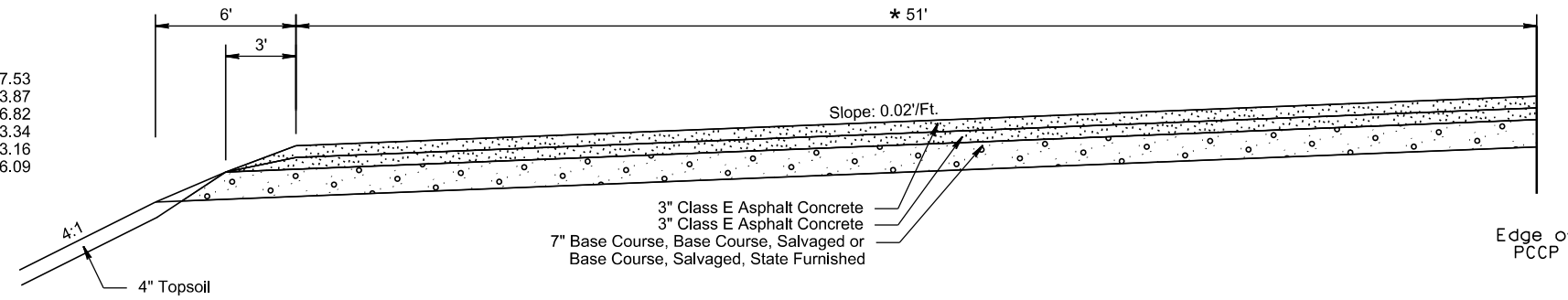
Sta. 144+45.48 to Sta. 145+74.92
 Sta. 197+42.58 to Sta. 198+72.01
 Sta. 250+03.84 to Sta. 251+33.27
 Sta. 305+74.20 to Sta. 307+01.92
 Sta. 354+49.40 to Sta. 355+81.01
 Sta. 410+34.45 to Sta. 411+63.08
 * 6' to 51'

Transitions:

Sta. 146+84.90 to Sta. 147+27.53
 Sta. 199+41.24 to Sta. 199+83.87
 Sta. 252+44.19 to Sta. 252+86.82
 Sta. 308+30.61 to Sta. 308+73.34
 Sta. 356+50.46 to Sta. 356+93.16
 Sta. 412+73.42 to Sta. 413+16.09
 * 51' to 6'

**Section 10
Proposed Left U-Turn**

Sta. 144+45.48 to Sta. 147+27.53
 Sta. 197+42.58 to Sta. 199+83.87
 Sta. 250+03.84 to Sta. 252+86.82
 Sta. 305+74.28 to Sta. 308+73.34
 Sta. 354+49.40 to Sta. 356+93.16
 Sta. 410+34.45 to Sta. 413+16.09



**Section 11
Proposed Right U-Turn**

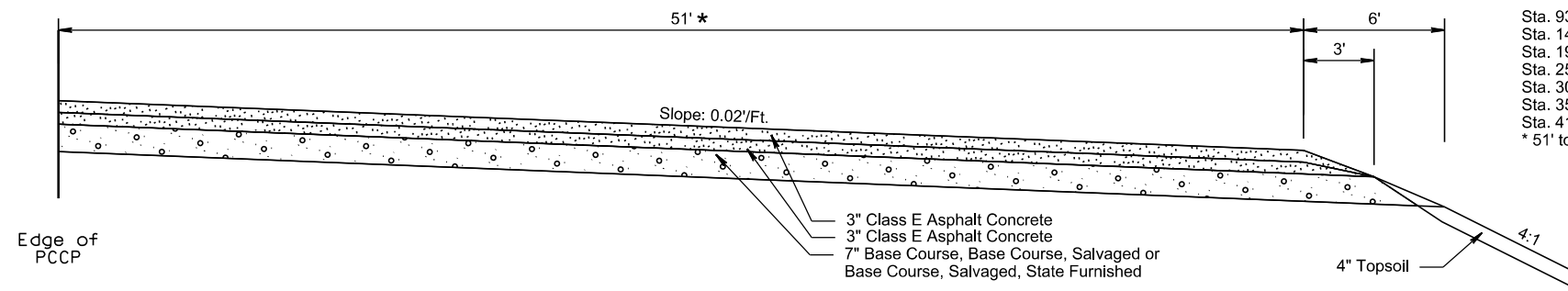
Sta. 92+39.03 to Sta. 95+21.09
 Sta. 145+62.82 to Sta. 148+04.12
 Sta. 198+48.62 to Sta. 200+89.92
 Sta. 250+90.54 to Sta. 253+71.69
 Sta. 307+26.67 to Sta. 309+95.82
 Sta. 411+53.72 to Sta. 414+31.23

Transitions:

Sta. 92+39.03 to Sta. 92+81.66
 Sta. 145+62.82 to Sta. 146+05.44
 Sta. 198+48.62 to Sta. 198+91.24
 Sta. 250+90.54 to Sta. 251+33.17
 Sta. 307+26.67 to Sta. 307+69.49
 Sta. 355+58.09 to Sta. 356+00.46
 Sta. 411+53.72 to Sta. 411+96.70
 * 6' to 51'

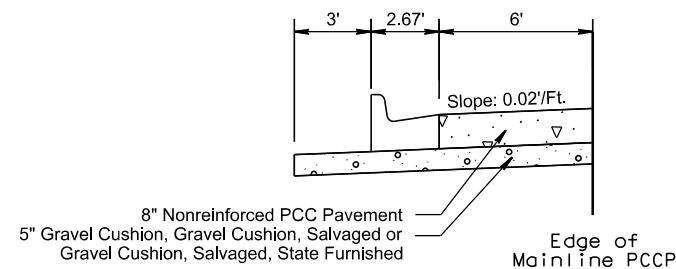
Transitions:

Sta. 93+91.66 to Sta. 95+21.09
 Sta. 146+74.69 to Sta. 148+04.12
 Sta. 199+60.49 to Sta. 200+89.92
 Sta. 252+42.26 to Sta. 253+71.69
 Sta. 308+64.81 to Sta. 309+95.82
 Sta. 356+69.49 to Sta. 357+98.17
 Sta. 413+00.88 to Sta. 414+31.23
 * 51' to 6'



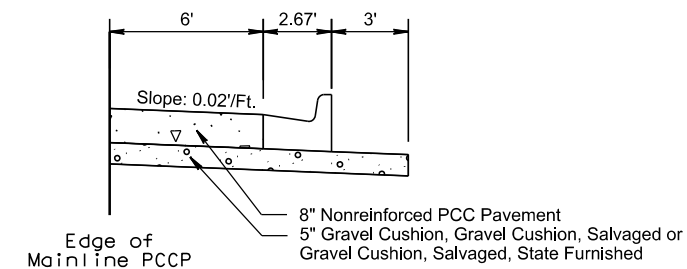
Section 12

Sta. 156+55.32 to Sta. 159+57.30
 Sta. 322+09.62 to Sta. 326+03.18



Section 13

Sta. 449+32.63 to Sta. 452+82.45



PLOT SCALE - 1:7,50002

PLOTTED FROM - TRPR16032

PLOT NAME - 10

FILE - ... \6923_TYPICAL SECTIONS.DGN

TYPICAL SURFACING SECTIONS

| | | | |
|-----------------------|-----------------|-------|--------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
| | NH 0018(157)438 | F21 | F93 |

Plotting Date: 05/03/2023

Revised: 28Apr23, RML

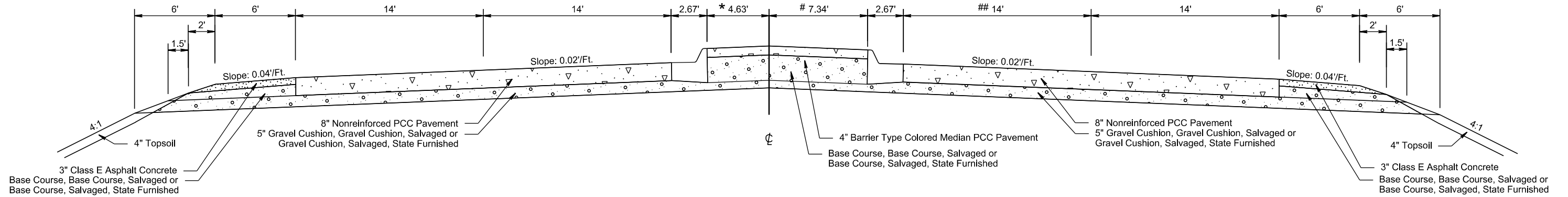
PLOT SCALE - 1:7,50002

PLOT NAME - 11

FILE - ... \6923_TYPICAL SECTIONS.DGN

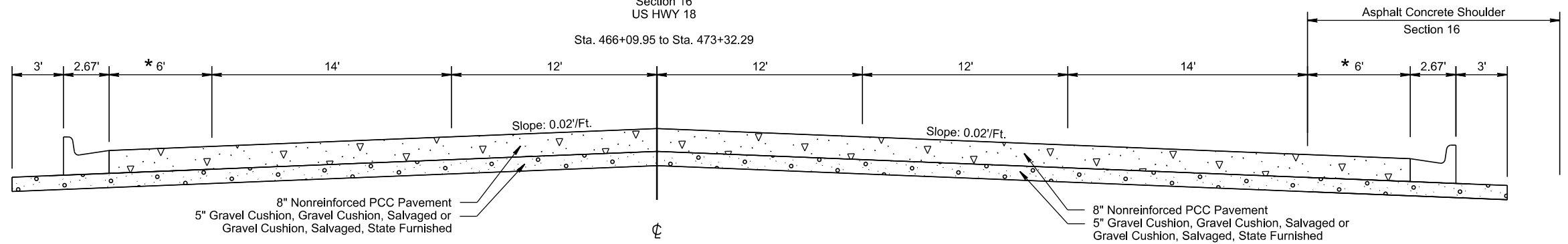
Transitions:
 Sta. 459+15.61 to Sta. 460+18.5
 * 4.63' to 3.26'
 # 7.34' Rt. to 1.25' Lt.
 ## 14' to 22.67'

Section 15
 US HWY 18
 Sta. 459+15.61 to Sta. 460+18.5



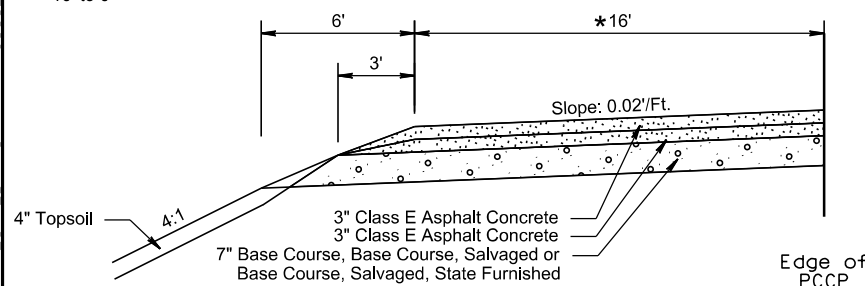
Transitions:
 Sta. 472+52.29 to Sta. 473+32.29
 * 6' to 0'

Section 16
 US HWY 18
 Sta. 466+09.95 to Sta. 473+32.29

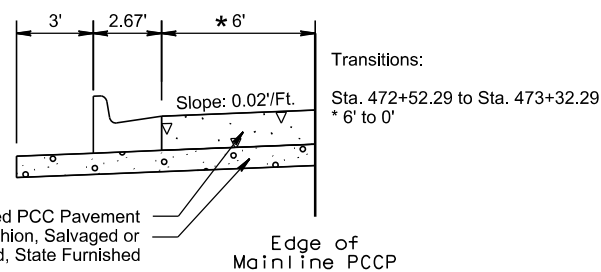


Transitions:
 Sta. 460+31.08 to Sta. 461+31.20
 * 6' to 16'
 Sta. 461+91.08 to Sta. 462+91.13
 * 16' to 6'

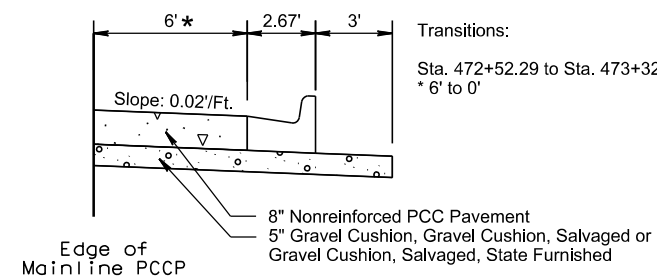
Section 17
 Proposed U-Turn
 Sta. 460+31.08 to Sta. 462+91.13



Section 18
 Curb & Gutter
 Sta. 466+09.95 to Sta. 473+32.29

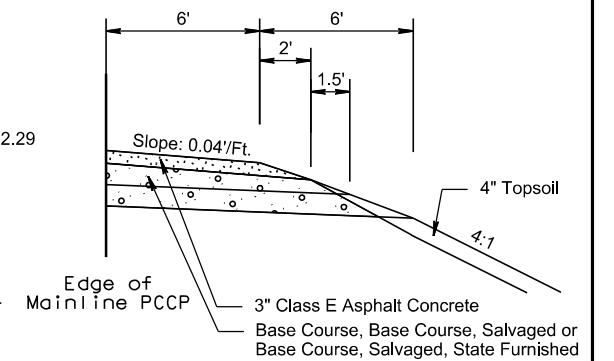


Section 19
 Curb & Gutter
 Sta. 466+29.54 to Sta. 473+32.29



Transitions:
 Sta. 472+52.29 to Sta. 473+32.29
 * 6' to 0'

Section 16
 Asphalt Concrete Shoulder
 Sta. 466+09.95 to Sta. 466+29.5



PLOTTED FROM - TRPR16032


PCC PAVEMENT JOINT LAYOUT

| | | | |
|-----------------------|-----------------|-------|--------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
| | NH 0018(157)438 | F58 | F93 |

Plotting Date: 05/03/2023

Revised: 28Apr23, RML

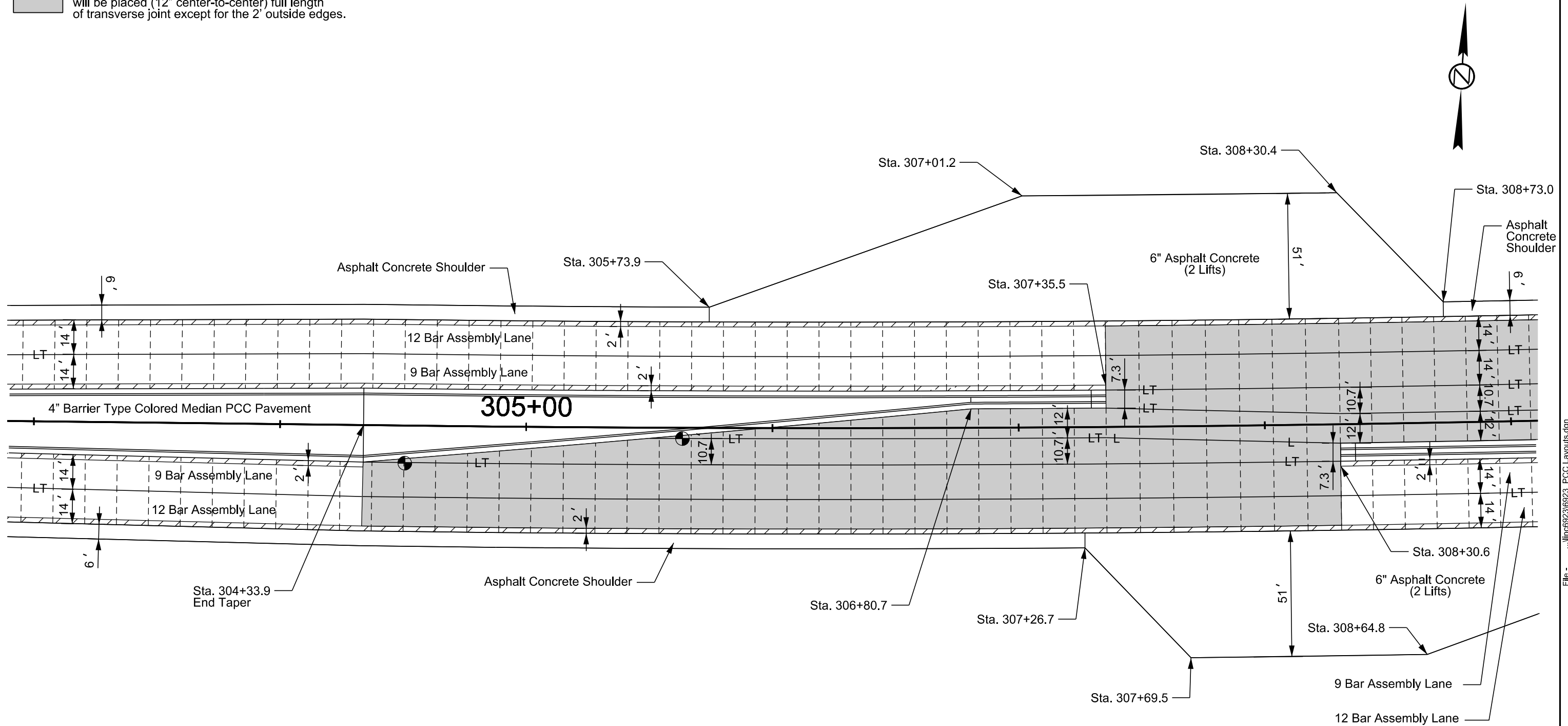
Scale 1 Inch = 40 Feet
Sheet 37 of 61 Sheets

 Dowel bars placed in turn lanes and intersections will be placed (12" center-to-center) full length of transverse joint except for the 2' outside edges.

Plot Scale - 1:40

Plotted From - TRPR16032

File - ...linc69236923_PCC Layouts.dgn




PCC PAVEMENT JOINT LAYOUT

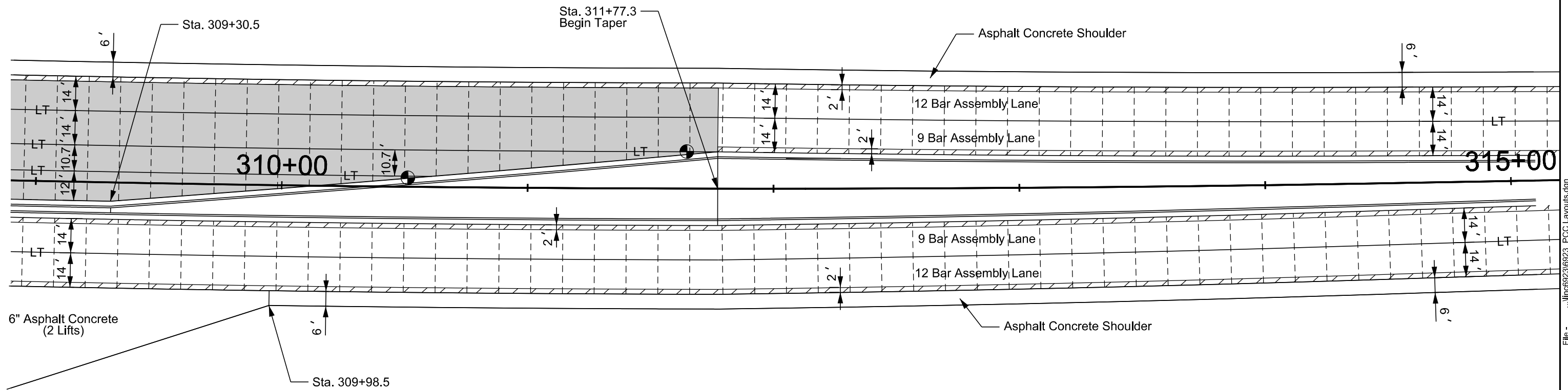
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|-----------------------|-----------------|-------|--------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
| | NH 0018(157)438 | F59 | F93 |

Plotting Date: 05/03/2023

Revised: 28Apr23, RML

Scale 1 Inch = 40 Feet
Sheet 38 of 61 Sheets

 Dowel bars placed in turn lanes and intersections will be placed (12" center-to-center) full length of transverse joint except for the 2' outside edges.

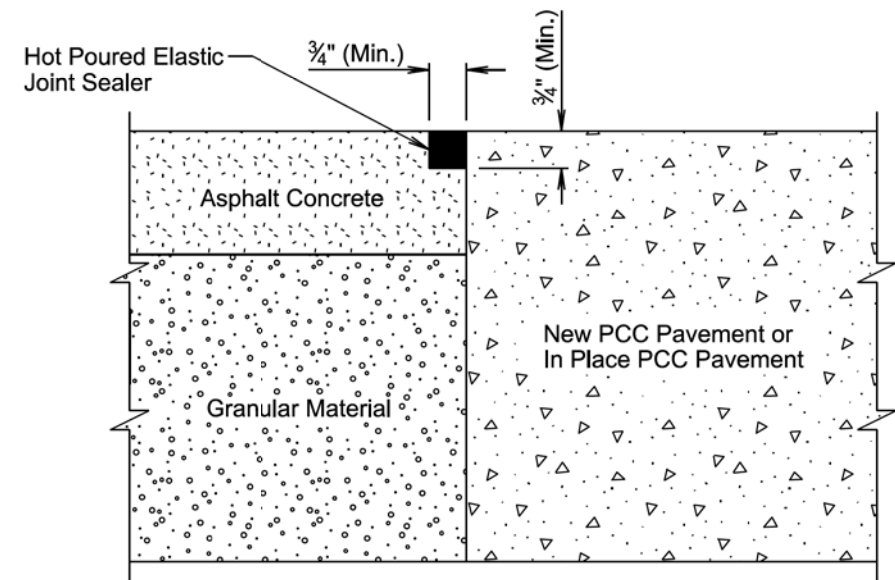


Plot Scale - 1:40

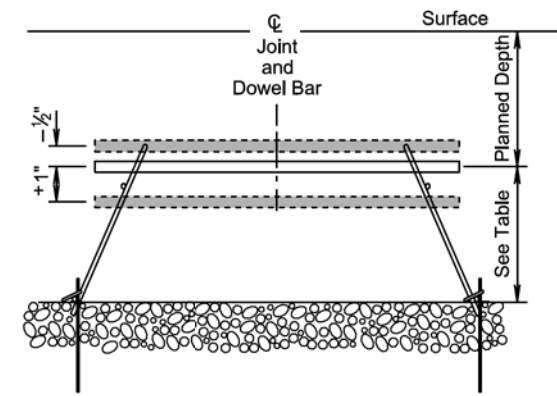
Plotted From - TRPR16032

Plotted From -

File - ...linc69236923_PCC Layouts.dgn

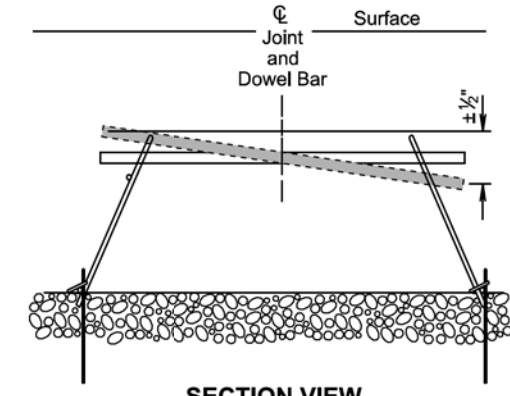


TRANSVERSE SECTION
(Asphalt Concrete Shoulder Joint)



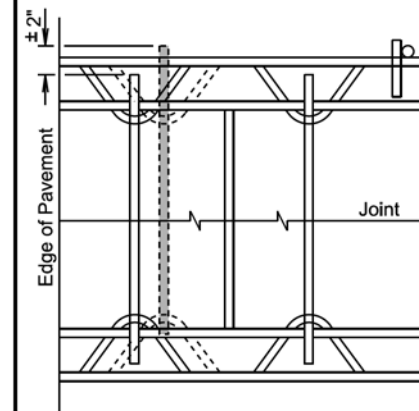
SECTION VIEW VERTICAL TRANSLATION

Depth: mid-depth + 1 inch or - 1/2 inch



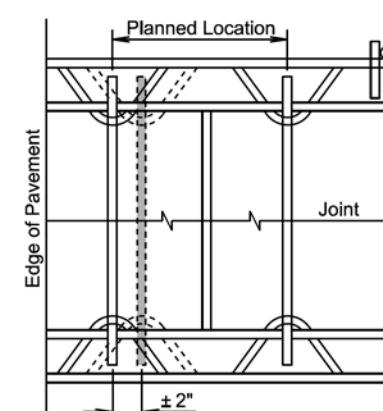
SECTION VIEW VERTICAL TILT

Vertical rotational alignment: 1/2 inch over 18 inch



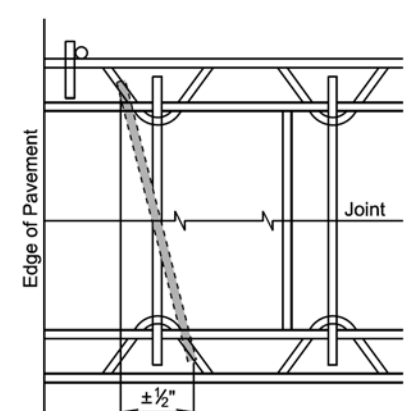
PLAN VIEW LONGITUDINAL TRANSLATION

Longitudinal side shift: ± 2 inch for 18 inch bars



PLAN VIEW HORIZONTAL TRANSLATION

Side shift ± 2 inch



PLAN VIEW HORIZONTAL SKEW

Horizontal rotational alignment: 1/2 inch over 18 inch

| PAVEMENT THICKNESS | EPOXY COATED DOWEL BAR SIZE | HEIGHT TO CENTER |
|--------------------|-----------------------------|------------------|
| 7" to 7 1/2" | 1" x 18" | 3.0" |
| 8" to 10" | 1 1/4" x 18" | 4.0" |
| 10 1/2" to 13" | 1 1/2" x 18" | 5.0" |

GENERAL NOTE:

The tolerances shown above represent the maximum deviation for acceptance of dowel bar placement.

September 14, 2019

November 19, 2022

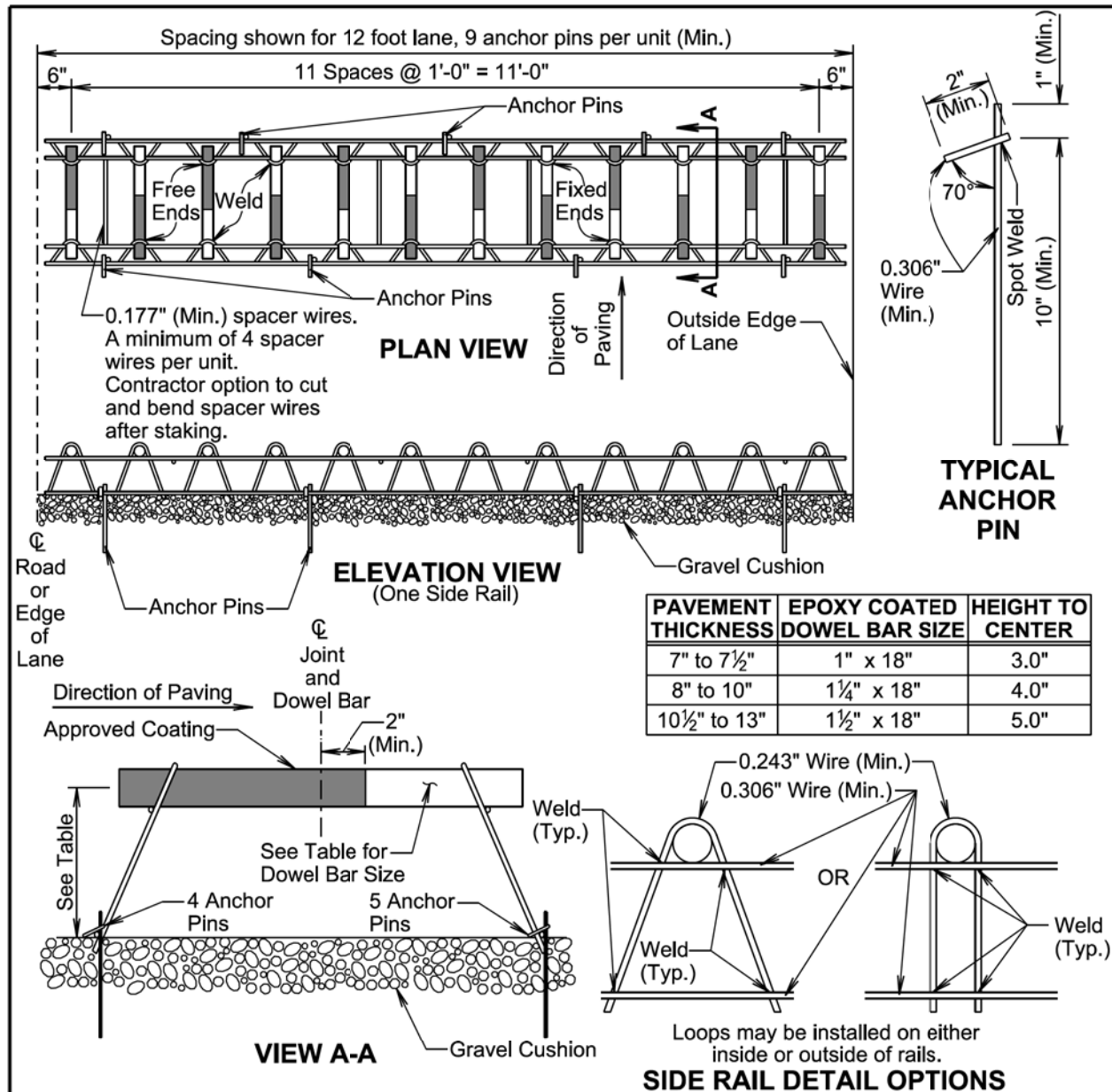
| | | |
|----------------------------------|---|------------------------|
| S D D O T | ASPHALT CONCRETE SHOULDER JOINT ADJACENT TO PCC PAVEMENT | PLATE NUMBER 320.15 |
| | | Sheet 1 of 1 |

Published Date: 1st Qtr. 2023

| | | |
|----------------------------------|--|------------------------|
| S D D O T | PCC PAVEMENT DOWEL BAR ALIGNMENT TOLERANCES | PLATE NUMBER 380.01 |
| | | Sheet 1 of 1 |

Published Date: 1st Qtr. 2023

Plot Scale - 1:200



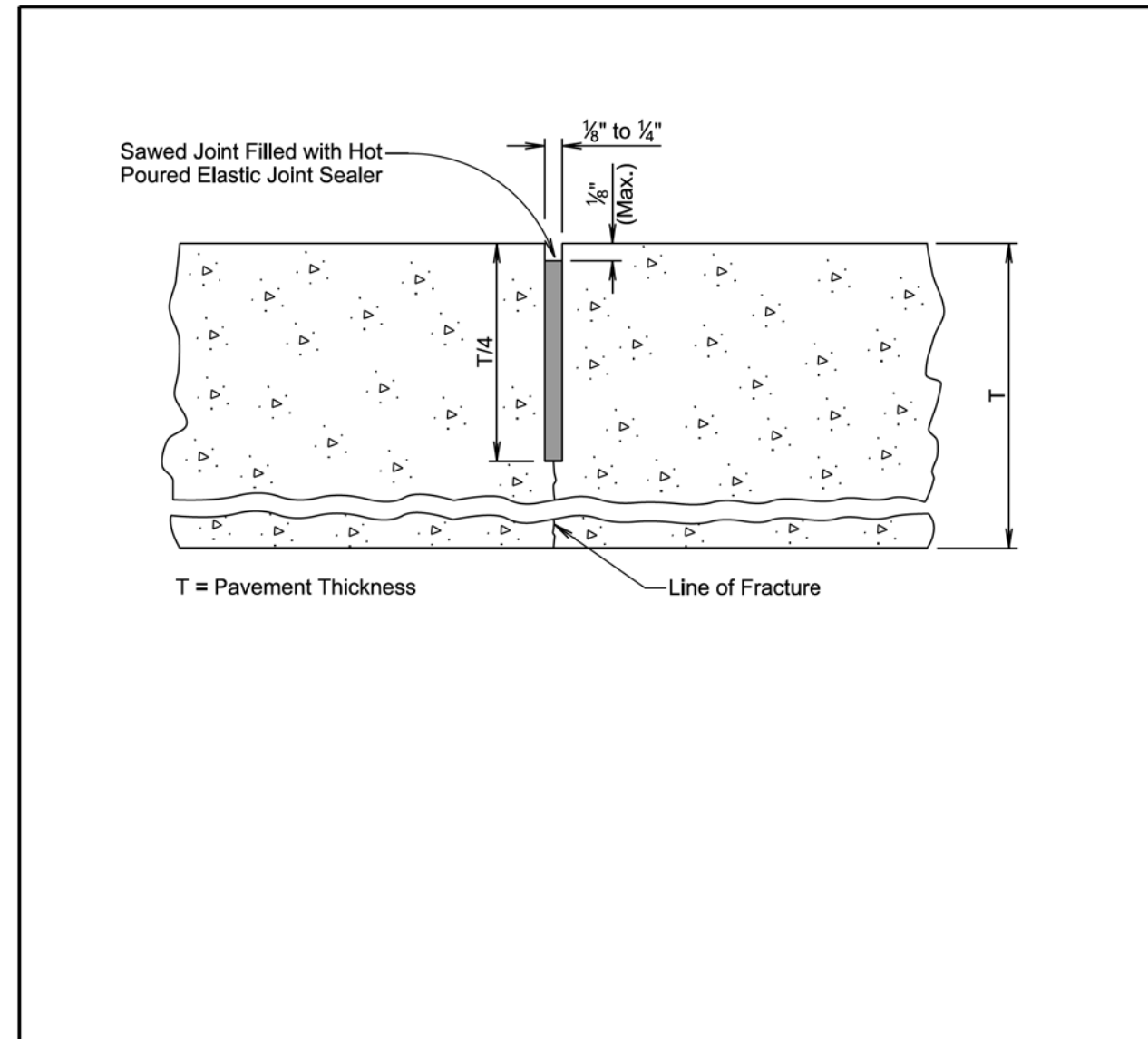
GENERAL NOTES:

- Longitudinal joint tie bars will be placed a minimum of 15 inches from the transverse contraction joint.
- The transverse contraction joints will be sawed perpendicular to the centerline of the roadway. The transverse sawed joint will be centered over the dowel bars.
- Supporting devices as shown on this sheet, or equivalent as approved by the Engineer, will be used to maintain proper horizontal and vertical alignment of the dowel bars.
- All dowel bar alignment tolerances will be as shown in the PCC Pavement Dowel Bar Alignment Tolerances standard plate.

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| S D D O T | PCC PAVEMENT DOWEL BAR ASSEMBLY FOR TRANSVERSE CONTRACTION JOINTS 12 Bar Assembly on Granular Base Material | PLATE NUMBER 380.04 |
| | | Sheet 1 of 1 |

Published Date: 1st Qtr. 2023



GENERAL NOTES:

- If an early entrance saw cut does not develop the full transverse crack, then the saw cut to control cracking will be a minimum ¼ of the thickness of the pavement.
- All hot poured elastic joint sealer material spilled on the surface of the concrete pavement will be removed as soon as the material has cooled. The extent of removal of material will be to the satisfaction of the Engineer. All costs for removal of the spilled joint sealer material will be borne by the Contractor.

November 19, 2022

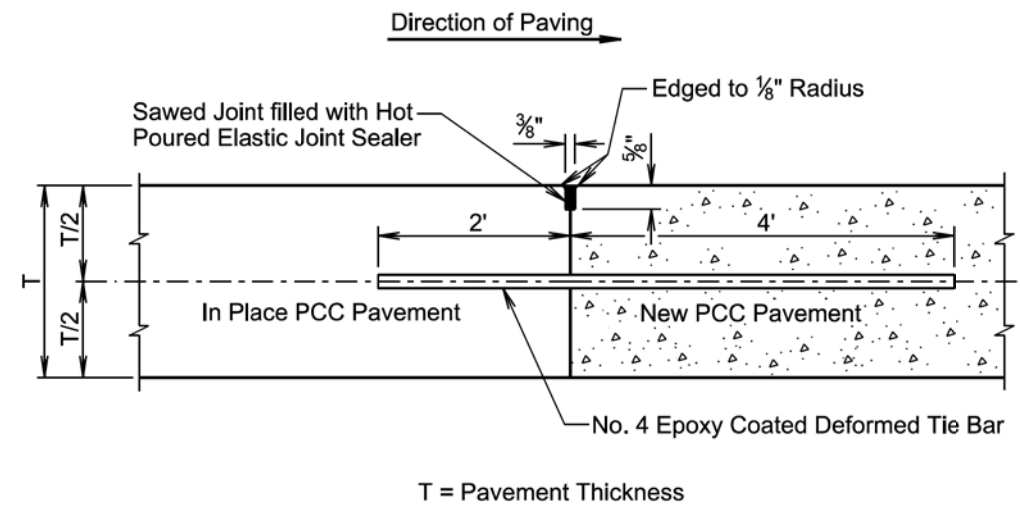
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|----------------------------------|---|------------------------|
| S D D O T | PCC PAVEMENT TRANSVERSE CONTRACTION JOINT WITH OR WITHOUT DOWEL BAR ASSEMBLY | PLATE NUMBER 380.12 |
| | | Sheet 1 of 1 |

Published Date: 1st Qtr. 2023

Plotted From: TRPR16032

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Plot Scale - 1:200



GENERAL NOTES:

No. 4 epoxy coated deformed tie bars will be spaced 12 inches center to center and will be a minimum of 3 inches and a maximum of 6 inches from the pavement edges.

The minimum distance between a transverse construction joint with tie bars and an adjacent transverse contraction joint will be 5 feet.

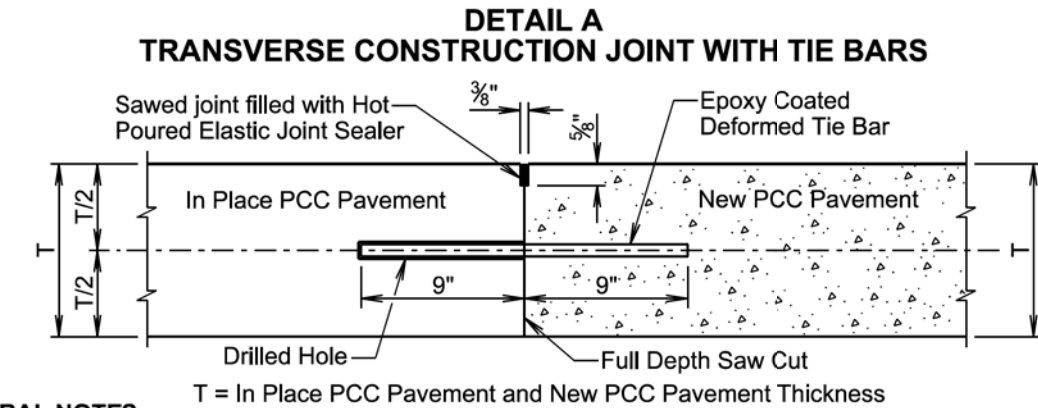
When a transverse construction joint is made, paving will not be allowed in this area for 12 hours.

A transverse construction joint may be placed in lieu of the transverse contraction joint when shown in the plans.

The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on the current project.

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| | | |
|----------------------------------|---|-------------------------------|
| S D D O T | PCC PAVEMENT MID PANEL TRANSVERSE CONSTRUCTION JOINT | PLATE NUMBER 380.14 |
| | <i>Published Date: 1st Qtr. 2023</i> | Sheet 1 of 1 |



GENERAL NOTES:

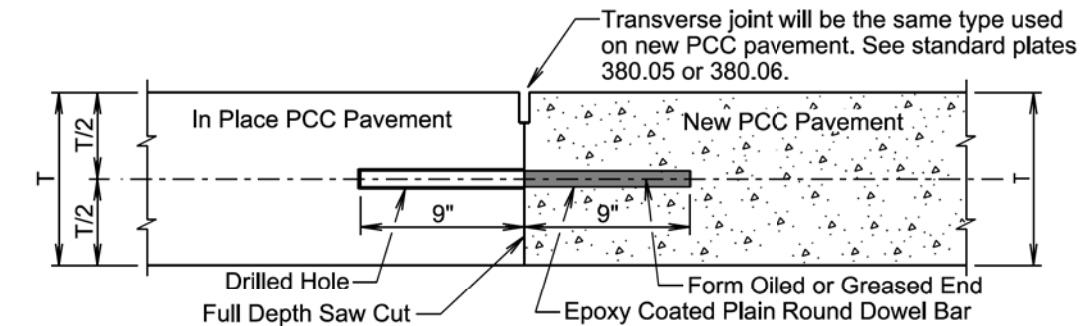
The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on a previous project.

See sheet 2 of 2 of this standard plate to determine if Detail A will be used.

The tie bars will be embedded a minimum depth of 9 inches into the in place PCC pavement and anchored with an epoxy resin adhesive or a non-shrink grout.

No. 9 epoxy coated deformed tie bars will be used in 10 inch thickness and less PCC Pavement and No. 11 epoxy coated deformed tie bars will be used in 10.5 inch thickness and greater PCC Pavement. The tie bar spacing will be 18 inches center to center and will be a minimum of 3 inches and a maximum of 9 inches from the pavement edges.

**DETAIL B
TRANSVERSE CONSTRUCTION JOINT WITH DOWEL BARS**



GENERAL NOTES:

The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on a previous project or current project.

See sheet 2 of 2 of this standard plate to determine if Detail B will be used.

The plain round dowel bars will be embedded a minimum depth of 9 inches into the in place PCC pavement and anchored with an epoxy resin adhesive or a non-shrink grout.

The epoxy coated plain round dowel bar size, number, and spacing will be the same as detailed on the corresponding dowel bar assembly standard plate (380.01, 380.02, 380.03, or 380.04). The epoxy coated plain round dowel bars will be a minimum of 3 inches and a maximum of 6 inches from the pavement edges.

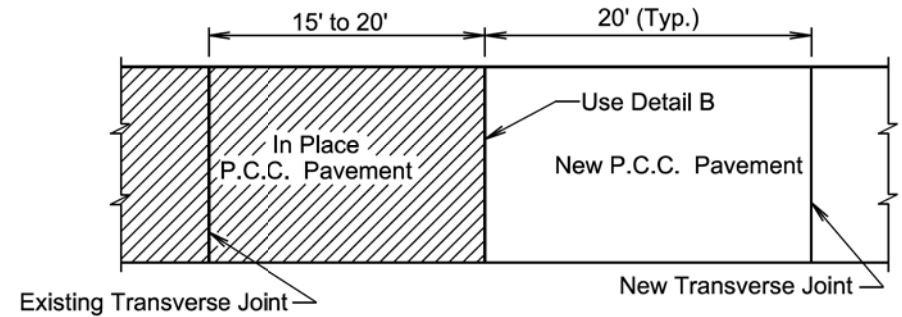
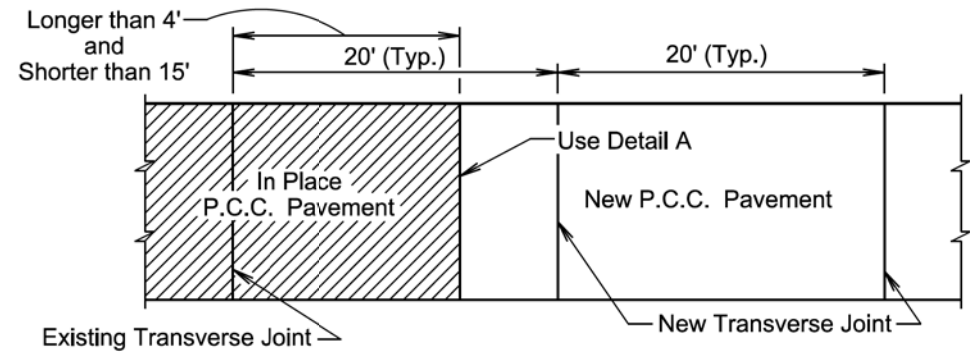
November 19, 2022

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|----------------------------------|--|-------------------------------|
| S D D O T | PCC PAVEMENT TRANSVERSE CONSTRUCTION JOINTS WITH TIE BARS OR DOWEL BARS | PLATE NUMBER 380.15 |
| | <i>Published Date: 1st Qtr. 2023</i> | Sheet 1 of 2 |

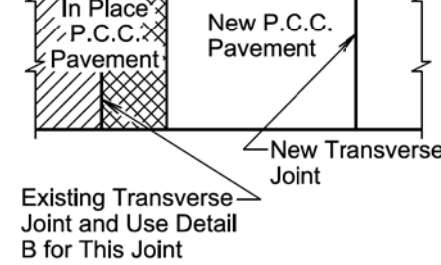
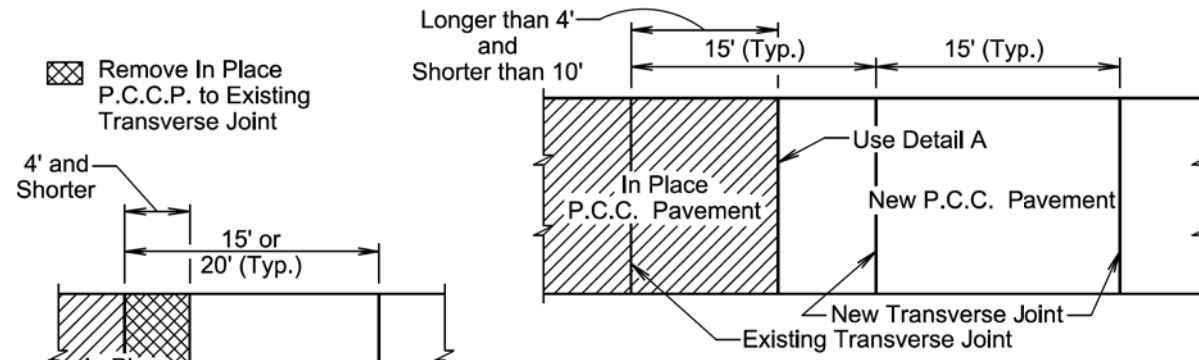
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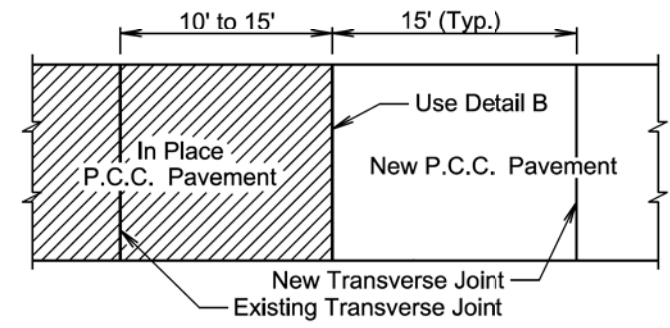
Plot Scale - 1:200



PLAN VIEW
(For typical transverse joint spacing of 20' on the current project)



PLAN VIEW
(For typical transverse joint spacing of 15' or 20' on the current project)



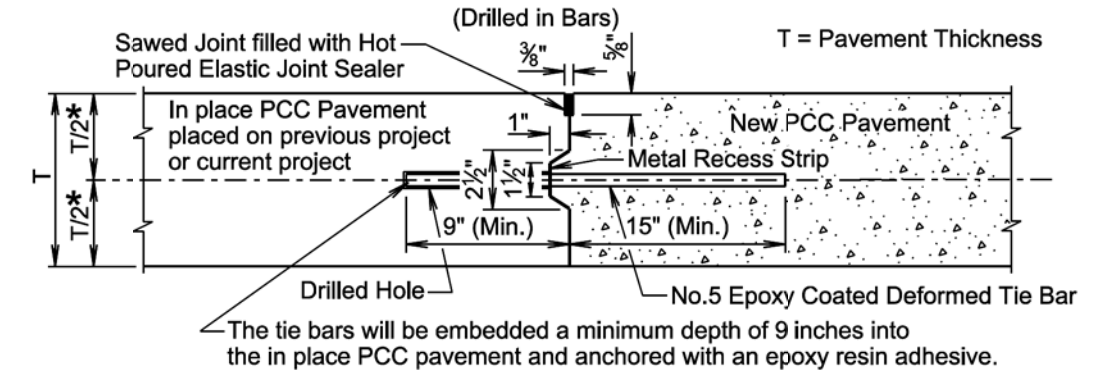
PLAN VIEW
(For typical transverse joint spacing of 15' on the current project)

November 19, 2022

| | | |
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| S D D O T | PCC PAVEMENT TRANSVERSE CONSTRUCTION JOINTS WITH TIE BARS OR DOWEL BARS | PLATE NUMBER 380.15 |
| | | Sheet 2 of 2 |

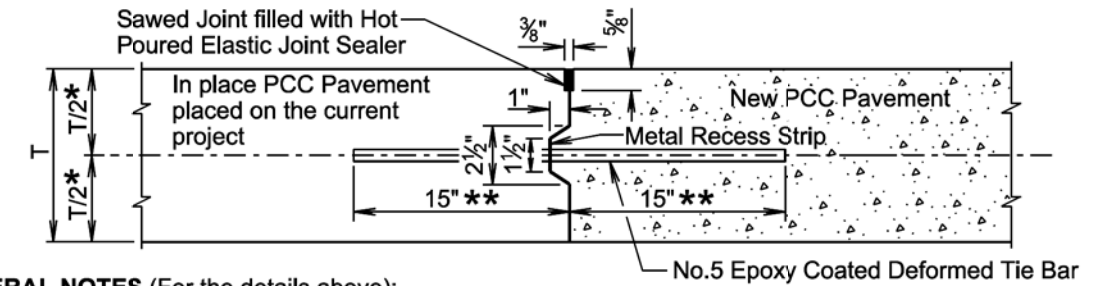
Published Date: 1st Qtr. 2023

LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS



The tie bars will be embedded a minimum depth of 9 inches into the in place PCC pavement and anchored with an epoxy resin adhesive.

LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS
(Inserted or Formed in Bars)



GENERAL NOTES (For the details above):

The epoxy coated deformed tie bars will be spaced in accordance with the following tables:

| Transverse Contraction Joint Spacing | Number of Tie Bars |
|--------------------------------------|--------------------|
| 6.5' to 10' | 2 |
| 10.5' to 14' | 3 |
| 14.5' to 18' | 4 |
| 18.5' to 22' | 5 |

| Transverse Contraction Joint Spacing | Number of Tie Bars |
|--------------------------------------|--------------------|
| 5' to 7' | 2 |
| 7.5' to 9.5' | 3 |
| 10' to 12' | 4 |
| 12.5' to 14.5' | 5 |
| 15' to 17' | 6 |
| 17.5' to 19.5' | 7 |
| 20' to 22' | 8 |

The tie bars will be placed a minimum of 15 inches from transverse contraction joints.

The required number of tie bars as shown in the table will be uniformly spaced within each panel. The uniformly spaced tie bars will be spaced a maximum of 48 inches center to center for a female keyway and will be spaced a maximum of 30 inches center to center for a vertical face and male keyway. The maximum tie bar spacing will apply to tie bars within each panel.

The keyway illustrated in the above details depict a female keyway.

The keyway is optional and is not required. When concrete pavement is formed and a keyway is provided, a metal recess strip will be used. When concrete pavement is slip formed, a metal recess strip is not required.

* The vertical placement tolerance for any part of the tie bar will be $\pm T/6$.

** The transverse placement (side shift) tolerance will be ± 3 inches when measured perpendicular to the longitudinal joint line.

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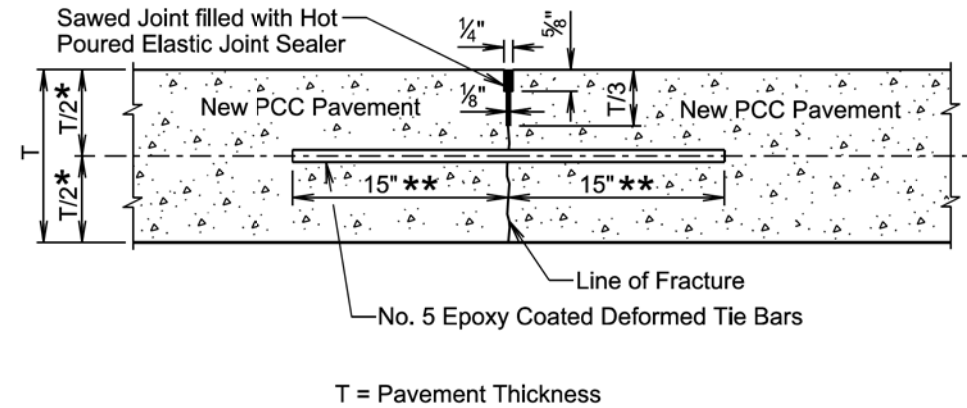
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|----------------------------------|---|------------------------|
| S D D O T | PCC PAVEMENT LONGITUDINAL JOINTS WITH TIE BARS | PLATE NUMBER 380.20 |
| | | Sheet 1 of 2 |

Published Date: 1st Qtr. 2023

Plotted From: TRPR16032

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SAWED LONGITUDINAL JOINT WITH TIE BARS (Poured Monolithically)



GENERAL NOTES (For the detail above):

The epoxy coated deformed tie bars will be spaced in accordance with the following table:

| TIE BAR SPACING 48" MAXIMUM | |
|--------------------------------------|--------------------|
| Transverse Contraction Joint Spacing | Number of Tie Bars |
| 6.5' to 10' | 2 |
| 10.5' to 14' | 3 |
| 14.5' to 18' | 4 |
| 18.5' to 22' | 5 |

The tie bars will be placed a minimum of 15 inches from the transverse contraction joints.

The required number of tie bars as shown in the table will be uniformly spaced within each panel with a maximum space of 48 inches center to center. The maximum tie bar spacing will apply to tie bars within each panel.

The first saw cut to control cracking will be a minimum of 1/3 the thickness of the pavement. Additional sawing for widening the saw cut to provide the width for the installation of the hot poured elastic joint sealer is necessary.

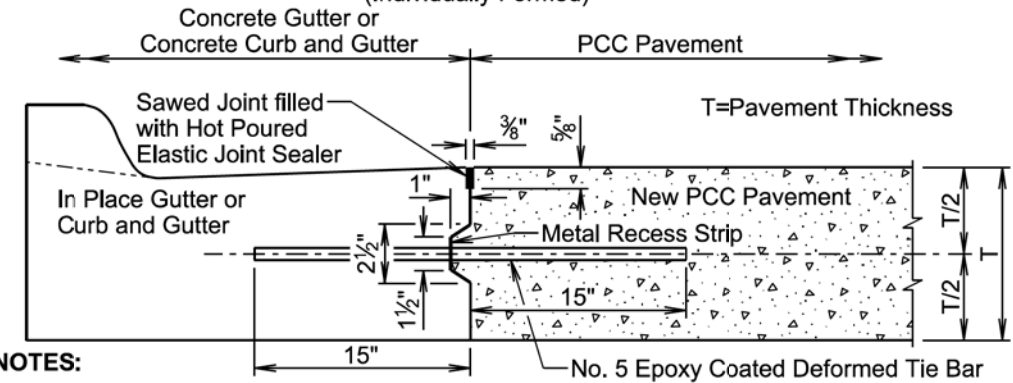
- * The vertical placement tolerance for any part of the tie bar will be $\pm T/6$.
- ** The transverse placement (side shift) tolerance will be ± 3 inches when measured perpendicular to the longitudinal joint line.

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| | | |
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| S D D O T | PCC PAVEMENT LONGITUDINAL JOINTS WITH TIE BARS | PLATE NUMBER 380.20 |
| | | Sheet 2 of 2 |

Published Date: 1st Qtr. 2023

LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS (Individually Formed)



GENERAL NOTES:

No. 5 epoxy coated deformed tie bars will be spaced 48 inches center to center. The keyway shown above is a female keyway.

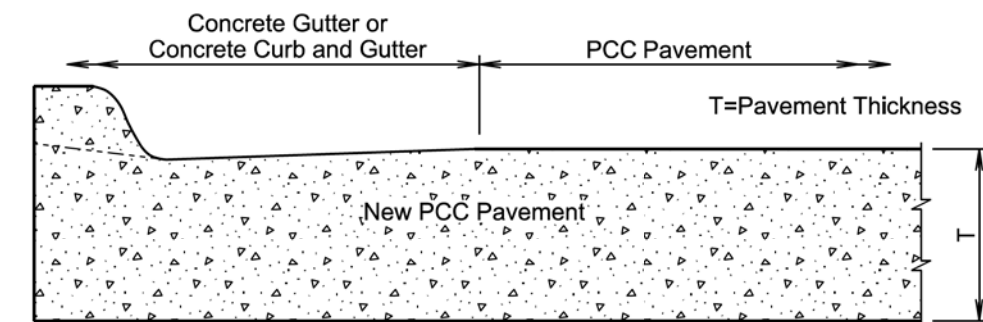
The tie bars will be placed a minimum of 15 inches from existing transverse contraction joints.

The keyway is optional and is not required. When concrete pavement is formed and a keyway is provided, a metal recess strip will be used. When concrete pavement is slip formed, a metal recess strip is not required.

The transverse contraction joints in the concrete gutter or concrete curb and gutter will be placed at each mainline PCC pavement transverse contraction joint. The transverse contraction joints in the concrete gutter or the concrete curb and gutter will be 1 1/2 inches deep if formed in fresh concrete using a suitable grooving tool. If a saw is used to cut the transverse contraction joints, then the depth of the joint will be at least 1/4 the thickness of the concrete gutter or concrete curb and gutter.

The term "In Place Gutter or Curb and Gutter" in the above drawing indicates that the in place concrete gutter and concrete curb and gutter was placed on the current project.

POURED MONOLITHICALLY



GENERAL NOTES:

The mainline curb and gutter may be placed monolithically with the PCC pavement if the mainline lane width is less than or equal to 12 feet. If this method of construction is used, the tie bars and the sawed joint between the curb and gutter and the PCC pavement will be eliminated.

The gutter or curb and gutter will be sawed transversely at each mainline transverse contraction joint. The transverse contraction joints in the gutter or curb and gutter will be sawed and sealed same as the transverse contraction joints in the PCC pavement.

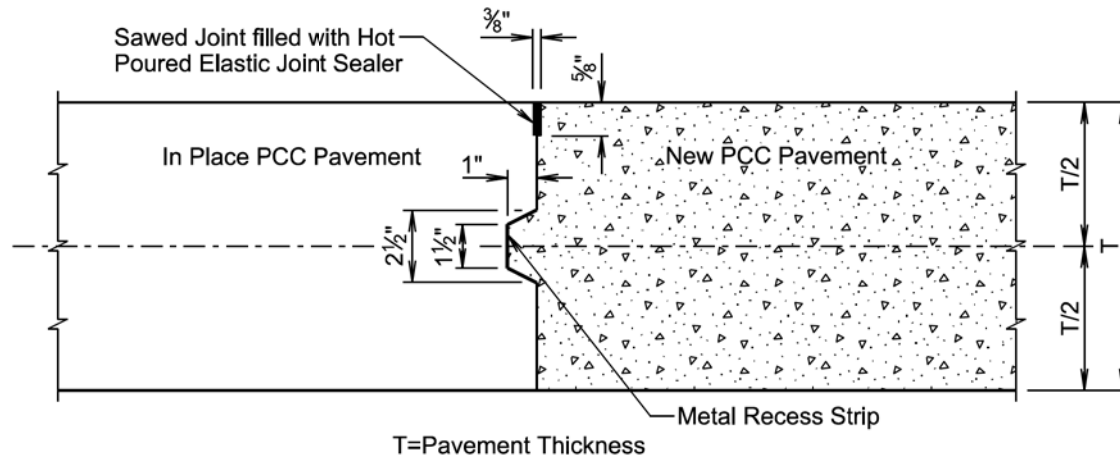
The slope of the gutter will be the slope designated for the type of gutter or curb and gutter to be constructed. The bottom slope of the gutter or curb and gutter will be constructed at the same slope as the mainline concrete pavement.

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| | | |
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| S D D O T | PCC PAVEMENT LONGITUDINAL CONSTRUCTION JOINTS WITH CONCRETE GUTTER OR CONCRETE CURB AND GUTTER | PLATE NUMBER 380.21 |
| | | Sheet 1 of 1 |

Published Date: 1st Qtr. 2023

LONGITUDINAL CONSTRUCTION JOINT WITHOUT TIE BARS

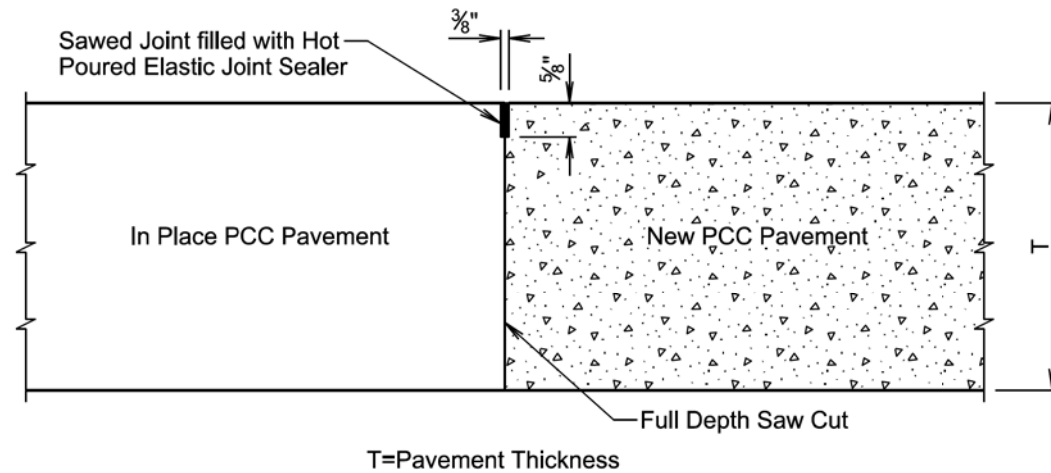


GENERAL NOTES:

When concrete pavement is formed and a keyway is provided, a metal recess strip will be used. When concrete pavement is slip formed, a metal recess strip is not required.

The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on the current project.

LONGITUDINAL CONSTRUCTION JOINT WITHOUT TIE BARS



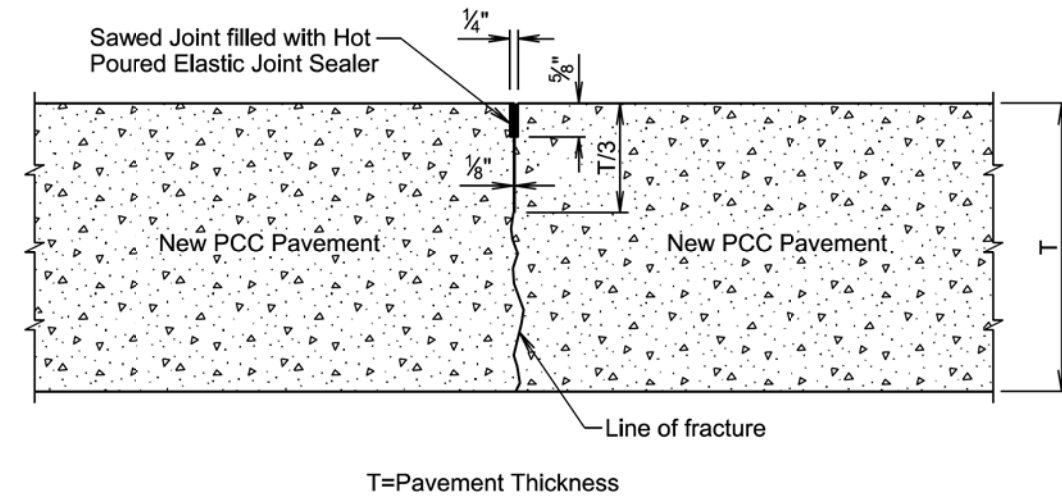
GENERAL NOTE:

The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on a previous project.

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| <i>Published Date: 1st Qtr. 2023</i> | S D D O T | PCC PAVEMENT LONGITUDINAL JOINTS WITHOUT TIE BARS | PLATE NUMBER 380.22 |
| | | | Sheet 1 of 2 |

SAWED LONGITUDINAL JOINT WITHOUT TIE BARS



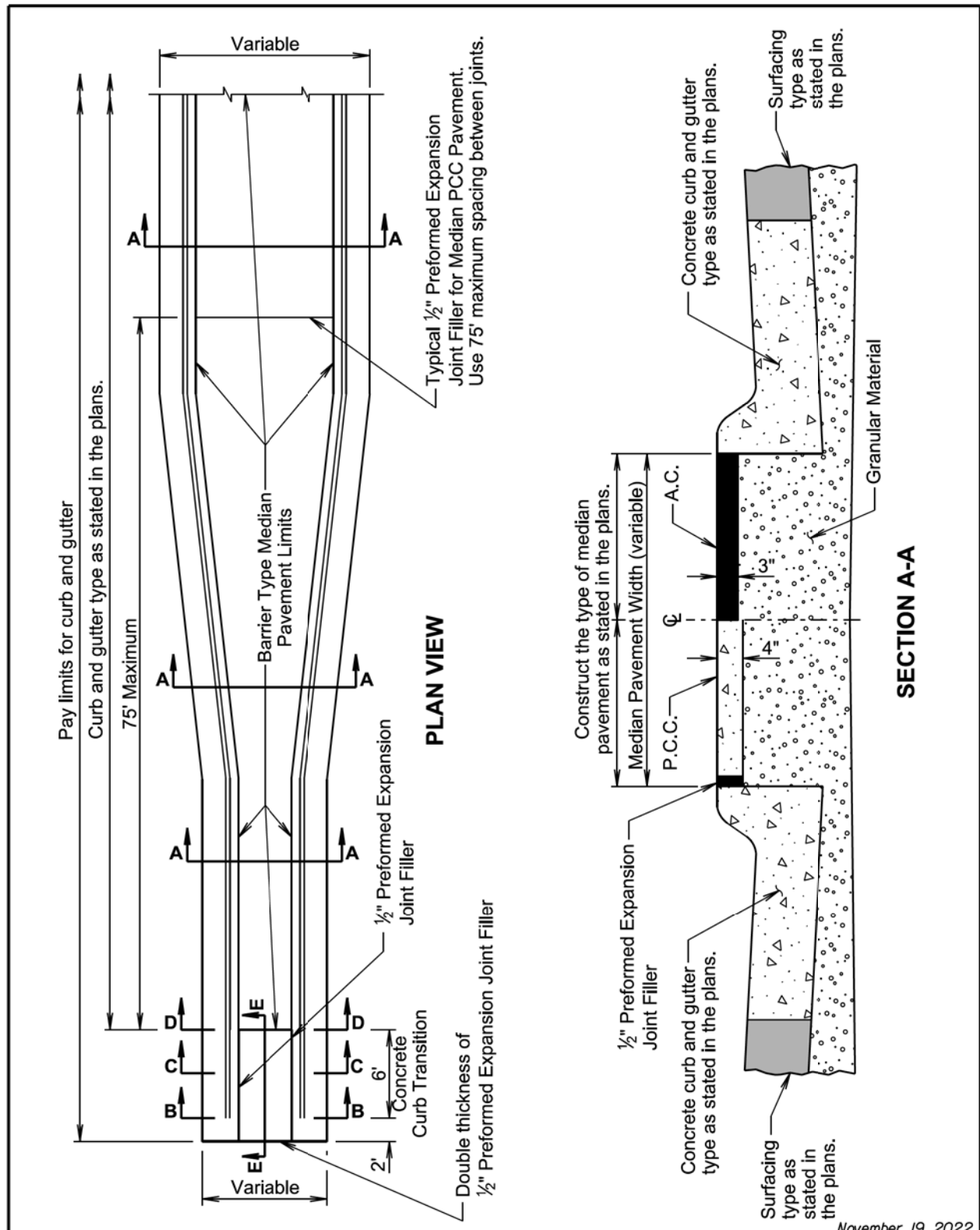
GENERAL NOTE:

The first saw cut to control cracking will be a minimum of 1/3 the thickness of the pavement. Additional sawing for widening the saw cut to provide the width for the installation of the hot poured elastic joint sealer will be necessary.

November 19, 2022

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| <i>Published Date: 1st Qtr. 2023</i> | S D D O T | PCC PAVEMENT LONGITUDINAL JOINTS WITHOUT TIE BARS | PLATE NUMBER 380.22 |
| | | | Sheet 2 of 2 |

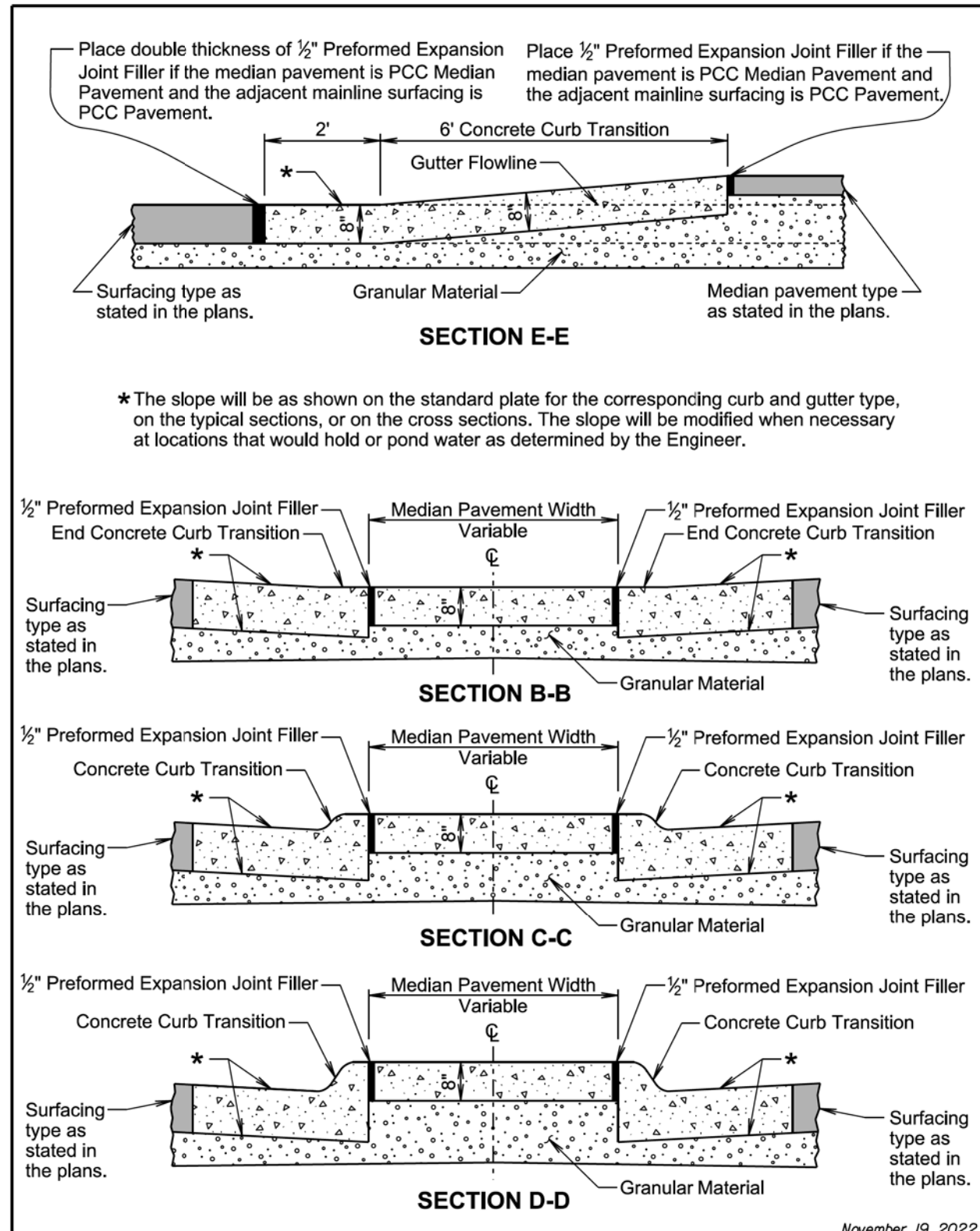
Plot Scale - 1:200



November 19, 2022

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| SDOT | BARRIER TYPE MEDIAN PAVEMENT | PLATE NUMBER 380.36 |
| | | Sheet 1 of 3 |

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| SDOT | BARRIER TYPE MEDIAN PAVEMENT | PLATE NUMBER 380.36 |
| | | Sheet 2 of 3 |

Published Date: 1st Qtr. 2023

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Plot Scale - 1:200

GENERAL NOTES:

Necessary excavation for construction of barrier type PCC and asphalt concrete median pavements and excavation for granular material will be measured and paid for as "Unclassified Excavation".

Concrete for barrier type median PCC pavement will comply with the requirements of the Specifications for Class M6 Concrete. One-half inch expansion joint filler will be placed transversely in the median PCC pavement at a maximum spacing of 75 feet. Where median PCC pavement is wider than 8 feet, a longitudinal joint will be sawed or grooved along the centerline of the median PCC pavement. Where the median PCC pavement is 4 feet or narrower and at width transitions, contraction joints will be sawed or grooved at spacings as approved by the Engineer. All other contraction joints will be sawed in square sections. All joints will be sawed or grooved to a depth of $\frac{1}{3}$ the thickness of the median PCC pavement.

All costs for labor, materials, and incidentals necessary for construction of the barrier type median pavement will be incidental to the contract unit price per square yard for "Barrier Type Median PCC Pavement" or "Barrier Type Median Asphalt Concrete Pavement".

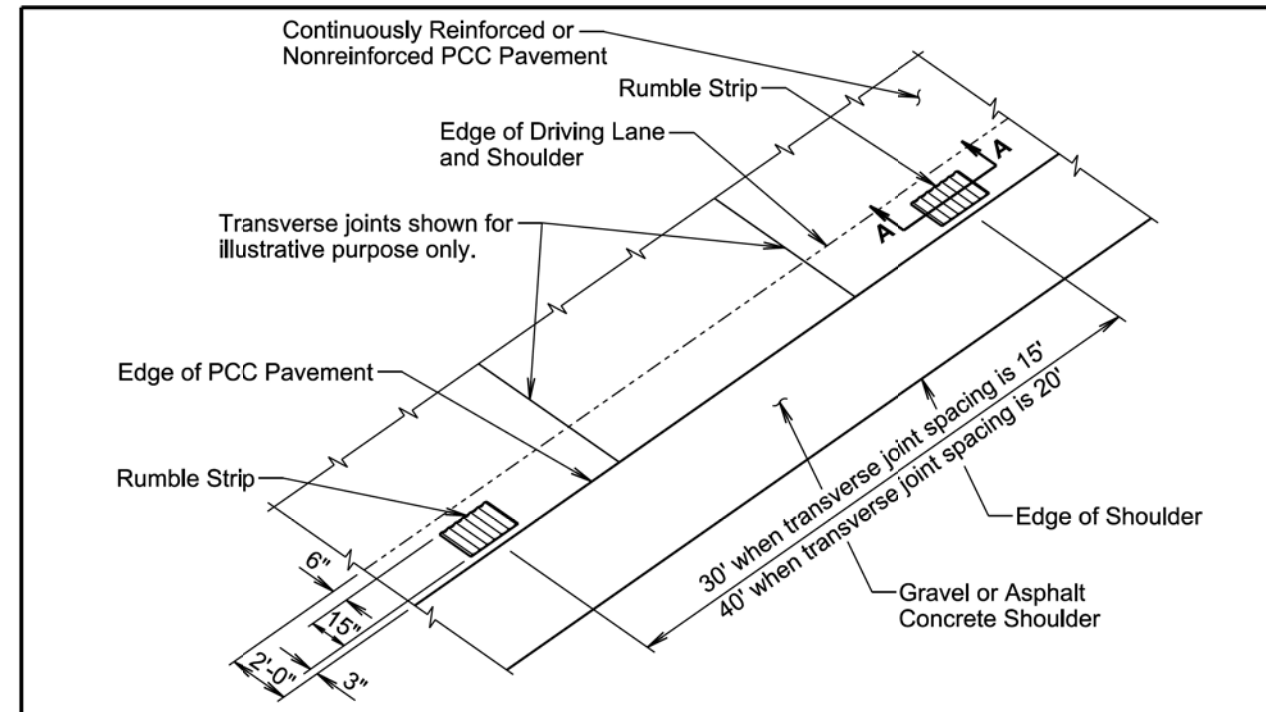
All costs for labor, materials, and incidentals necessary for construction of the 6-foot concrete curb transition (See Sections B-B, C-C, and D-D) and the adjacent 8-inch thick concrete (See Section E-E) will be incidental to the contract unit price per foot for the corresponding curb and gutter contract item.

Granular material will be paid for at the contract unit price for the respective granular material contract item.

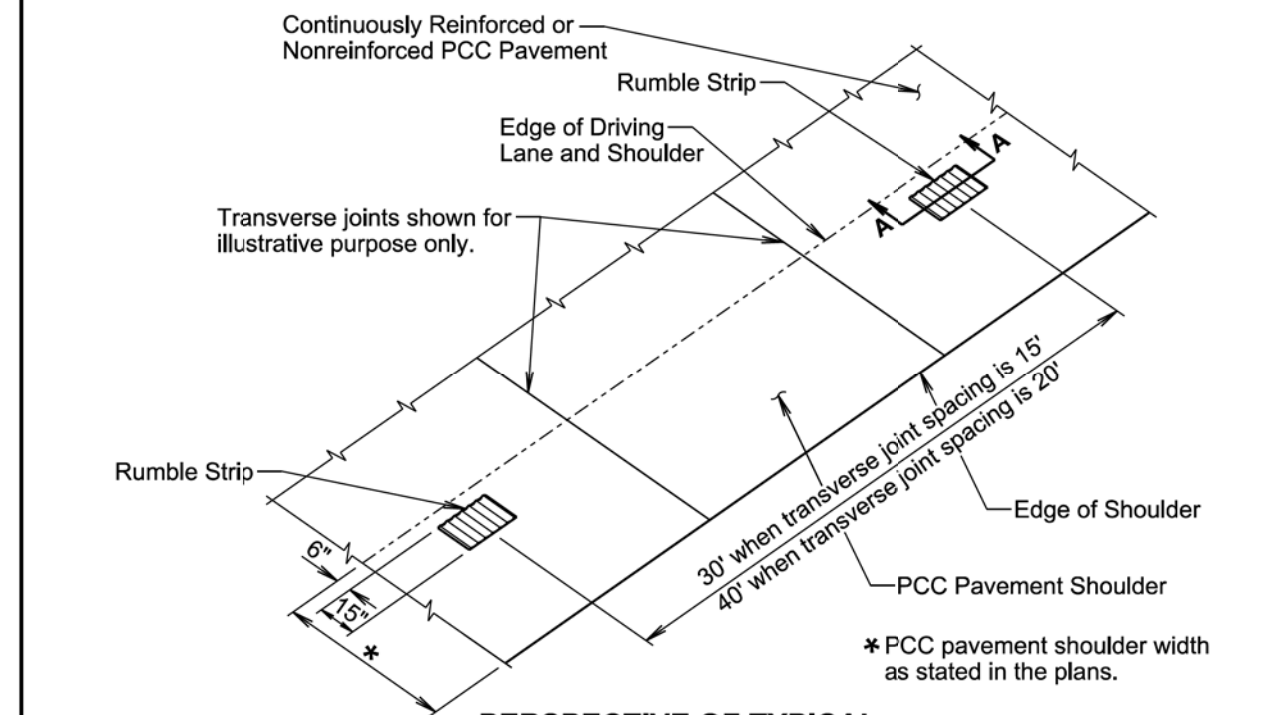
November 19, 2022

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| S D D O T | BARRIER TYPE MEDIAN PAVEMENT | PLATE NUMBER 380.36 |
| | | Sheet 3 of 3 |

Published Date: 1st Qtr. 2023



PERSPECTIVE OF TYPICAL RUMBLE STRIPS ON PCC PAVEMENT SHOULDER ADJACENT TO GRAVEL OR ASPHALT CONCRETE SHOULDER



PERSPECTIVE OF TYPICAL RUMBLE STRIPS ON PCC PAVEMENT SHOULDER

| | | |
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| S D D O T | RUMBLE STRIP ON PCC PAVEMENT SHOULDER | PLATE NUMBER 380.53 |
| | | Sheet 1 of 2 |

Published Date: 1st Qtr. 2023

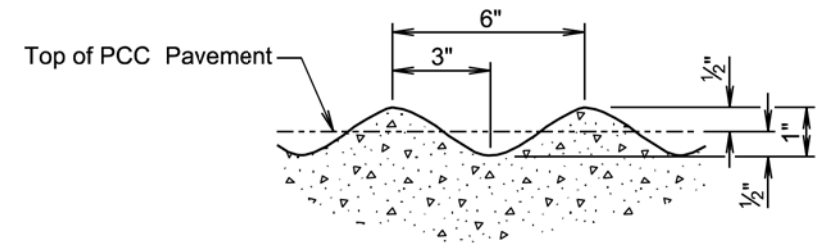
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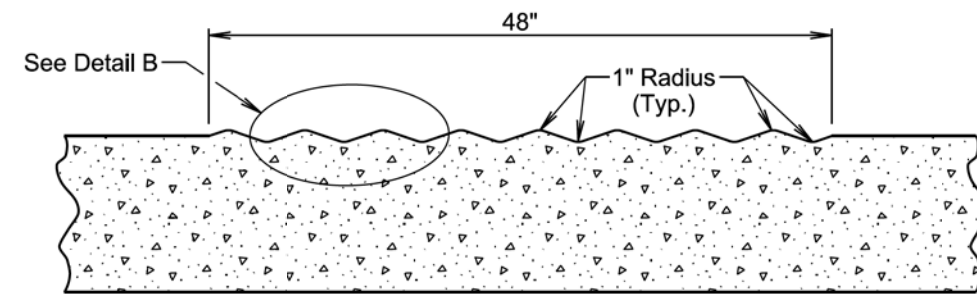
Revised: 28Apr23, RML

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| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
| | NH 0018(157)438 | F93 | F93 |

Plotting Date: 05/03/2023



DETAIL B



SECTION A-A

GENERAL NOTES:

The rumble strips will be evenly spaced and will not coincide with any transverse contraction joints.

The rumble strips will NOT be placed along areas adjacent to entrance ramps, exit ramps, and gore areas.

Payment for constructing the PCC Pavement Rumble Strips will be incidental to the contract unit price per square yard for the corresponding PCC Pavement contract item.

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| <i>Published Date: 1st Qtr. 2023</i> | S D D O T | RUMBLE STRIP ON PCC PAVEMENT SHOULDER | PLATE NUMBER 380.53 |
| | | | Sheet 2 of 2 |

Plot Scale - 1:200

Plotted From - TRPR16032

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SECTION S – ESTIMATE OF QUANTITIES

| BID ITEM NUMBER | ITEM | QUANTITY | UNIT |
|-----------------|---|----------|------|
| 110E0100 | Remove Concrete Footing(s) | Lump Sum | LS |
| 110E0130 | Remove Traffic Sign | 37 | Each |
| 110E7150 | Remove Sign for Reset | 54 | Each |
| 632E0010 | 1.25' Diameter Breakaway Support Concrete Footing | 240.0 | Ft |
| 632E0014 | 1.75' Diameter Breakaway Support Concrete Footing | 140.0 | Ft |
| 632E1225 | W6x12 Steel Post | 206.0 | Ft |
| 632E1320 | 2.0"x2.0" Perforated Tube Post | 403.1 | Ft |
| 632E1340 | 2.5"x2.5" Perforated Tube Post | 613.7 | Ft |
| 632E1500 | 4"x4" Wood Post | 48.0 | Ft |
| 632E2510 | Type 2 Object Marker Back to Back | 42 | Each |
| 632E2520 | Type 2 Object Marker | 144 | Each |
| 632E3203 | Flat Aluminum Sign, Nonremovable Copy High Intensity | 373.5 | SqFt |
| 632E3205 | Flat Aluminum Sign, Nonremovable Copy Super/Very High Intensity | 37.5 | SqFt |
| 632E3500 | Reset Sign | 54 | Each |

GENERAL PERMANENT SIGNING

New sign installations will be staked in the field by the Contractor and checked by the Engineer. The Contractor will give the Engineer a minimum of one week to check staked locations prior to signpost installation. Lateral offset of signs will be as shown in the plans or as directed by the Engineer.

The Contractor will be responsible for contacting South Dakota One Call to locate the utilities at the staked sign installation locations.

When signs are mounted in an assembly, they will be 1-2 inches apart vertically and horizontally.

The height of the post must not exceed the minimum height needed by more than 0.5 feet. Any portion that extends above the sign will be cut off. No separate payment will be made for cutting the post or for that length cut off.

Aluminum U-Channel stiffeners will be used on all signs 36 inches or greater in width and will conform to ASTM B221 Alloy 6063-T6 or 6061-T6. The U-Channel will be 2 inches in width and free of holes. The U-Channel stiffeners will also be used to connect various signs together so that an entire sign assembly can be erected on a single installation. Stiffeners may be fastened to signs by use of 1/4-inch diameter drive rivets. Refer to the Breakaway Sign Supports diagram for typical sign and stiffener details.

The Contractor will use 3/8-inch diameter rust proof machine sign bolts, flat metal washers, neoprene washers (against the sign sheeting), lock washers, and nuts to fasten the sign to the channel aluminum and posts. A minimum of two bolts will extend through each post.

Prior to ordering signs, the Contractor will verify dimensions, background, border, and legend of the signs.

Prior to use, the Contractor will provide documentation for the sign support devices showing they meet the applicable NCHRP 350 or MASH requirements.

REMOVE TRAFFIC SIGN

Existing signs that are shown as being removed in the Permanent Signing Table will become the property of the Contractor. Existing signposts and bases will be removed in their entirety. All existing signs, posts, and/or hardware removed will not be reused. Holes remaining from the removal of wood posts will be backfilled and compacted with material placed in layers not to exceed 6 inches in depth.

All costs associated with the removal of existing signs, posts, hardware, and backfilled holes will be incidental to the contract unit price per each for "Remove Traffic Sign". Quantities will be per assembly at the contract unit price per each.

REMOVE SIGN FOR RESET AND RESET SIGN

Signs that are scheduled for reset will be dismantled and reassembled to the extent needed by the Contractor to properly reset the sign. Signs will be handled with care so that the existing signs, posts, and bases are not damaged during the relocation process. The Contractor will replace and pay for any reset signs damaged in their care. The Contractor will remove and dispose of any existing posts for all reset signs that require use of new posts as shown in the Table of Permanent Signing.

All costs for removing, dismantling, and disposing of any existing posts will be incidental to the contract unit price per each for "Remove Sign for Reset". All costs for resetting the existing signs will be incidental to the contract unit price per each for "Reset Sign". All quantities for Remove Sign for Reset and Reset Sign will be per assembly at the contract unit price per each.

Any 911 Emergency Number signs within the project work limits will not be stockpiled but temporarily repositioned at a location outside the work limits but within the immediate proximity of the existing location. To complete the project sign work, the 911 Emergency Number signs will be permanently installed at their original locations, or as near as practicable where entrances have been reconfigured by the project. The existing supports will be reused. Cost for removing, temporarily repositioning, and permanently resetting 911 Emergency Number signs will be included in the contract unit price per each for "Remove Sign for Reset" and "Reset Sign".

NEW PERMANENT SIGNING

All signs will be manufactured in accordance with the sheeting manufacturer's recommendations utilizing a matched component system, including inks, electronic cuttable films, and protective overlay films. Digitally printed signs will not be accepted.

All Flat Aluminum Signs, Nonremovable Copy High Intensity will have sheeting in conformance with the requirements of ASTM D4956 Type IV. All Flat Aluminum Signs, Nonremovable Copy Super/Very High Intensity will have sheeting in conformance with the requirements of ASTM D4956 Type XI.

All costs associated with furnishing and installing the new permanent signs, and with furnishing and installing stiffeners and hardware will be incidental to the contract unit price per square foot for "Flat Aluminum Sign, Nonremovable Copy High Intensity" or "Flat Aluminum Sign, Nonremovable Copy Super/Very High Intensity".

SQUARE TUBE ANCHOR SLEEVE

The Contractor will furnish and install new 2.5" x 2.5" x 18", 12 Gauge square tube anchor sleeve or equivalent components as approved by the Engineer for 2.0" x 2.0" perforated tube posts. A 2.25" x 2.25" x 4', 12 Gauge perforated tube post will be used as the anchor post for installation with the square tube anchor sleeve.

REMOVE AND RESET MILEAGE REFERENCE MARKERS

Mileage Reference Markers (MRMs) are not to be disturbed. If an MRM is attached to a sign listed for replacement it will be salvaged and reattached to the new sign in the same location. Payment for this work will be incidental to the various signing contract items.

SIGNPOST INSTALLATION IN CONCRETE

On concrete surfaces, a block out will be used for sign installation. The block out diameter will be sized accordingly depending on post size. Concrete surrounding the block out must not be cracked or damaged.

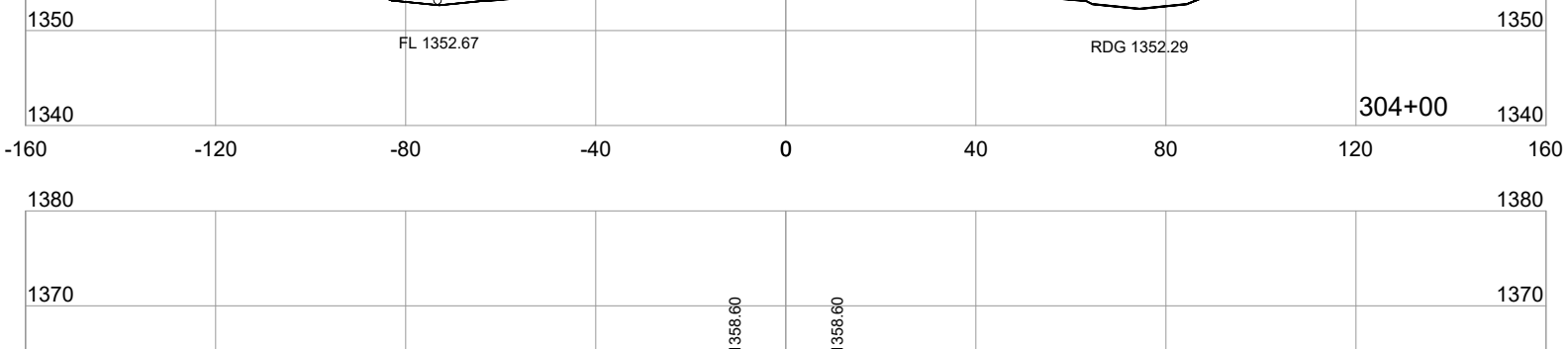
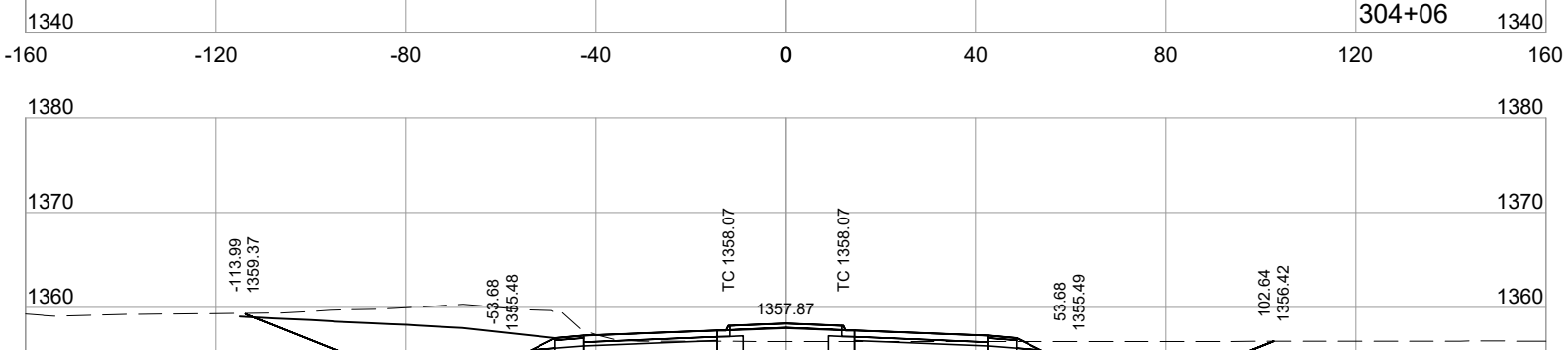
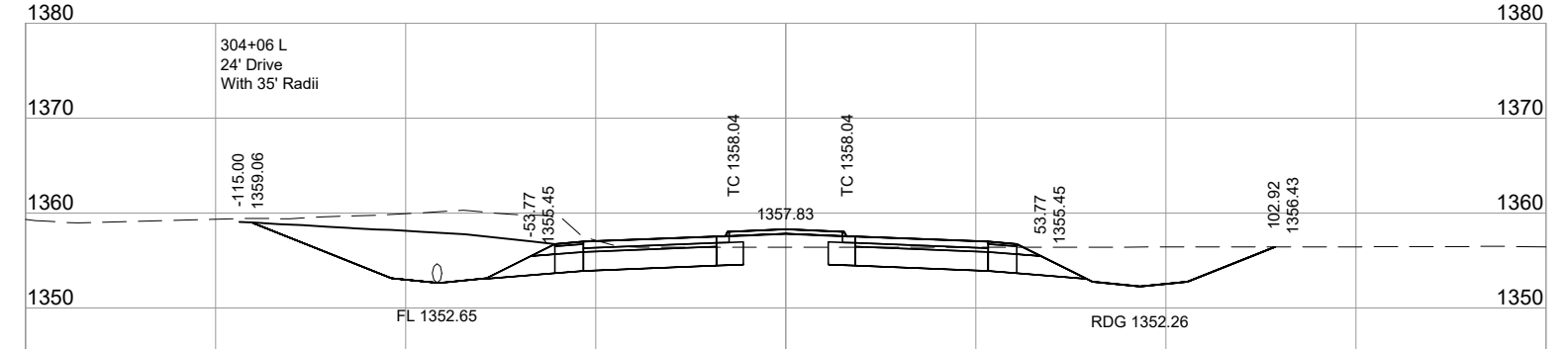
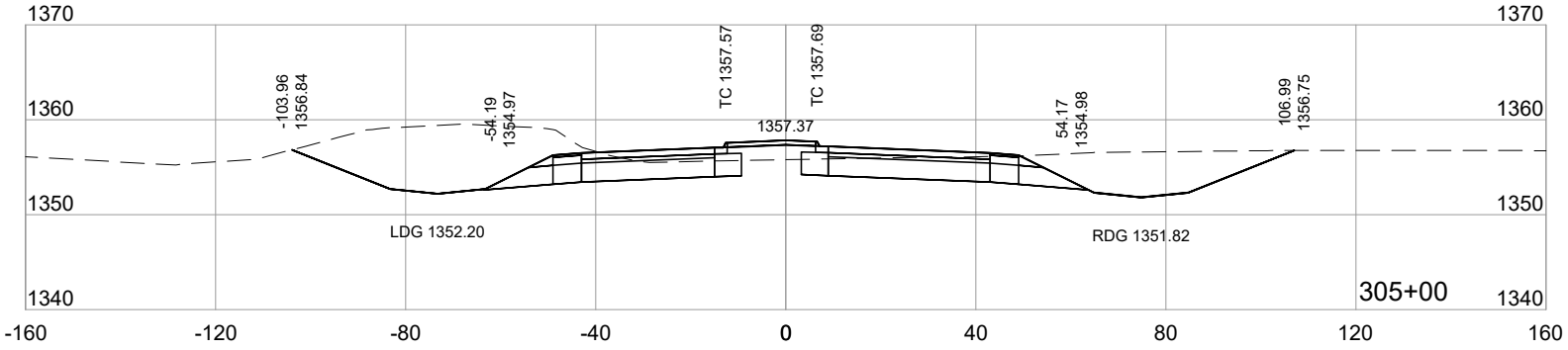
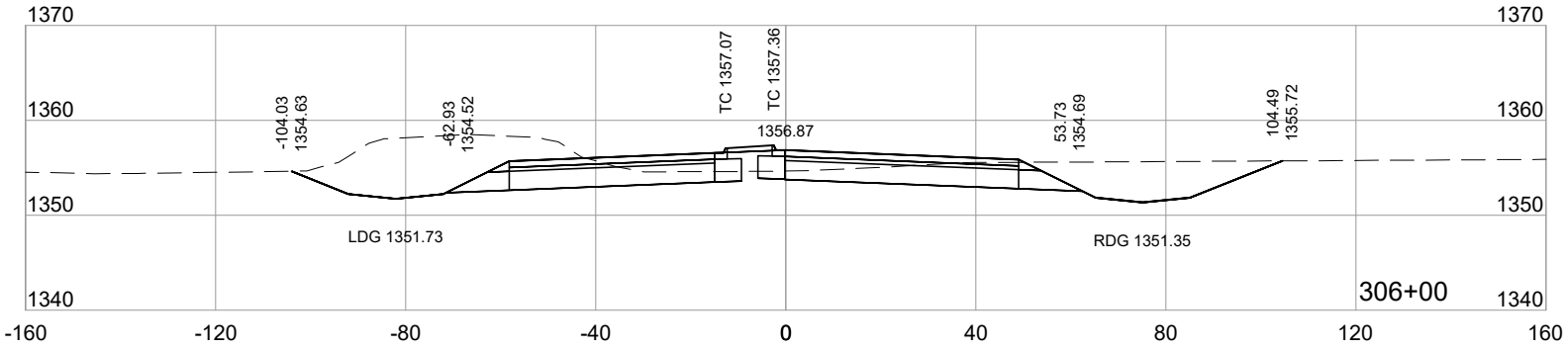
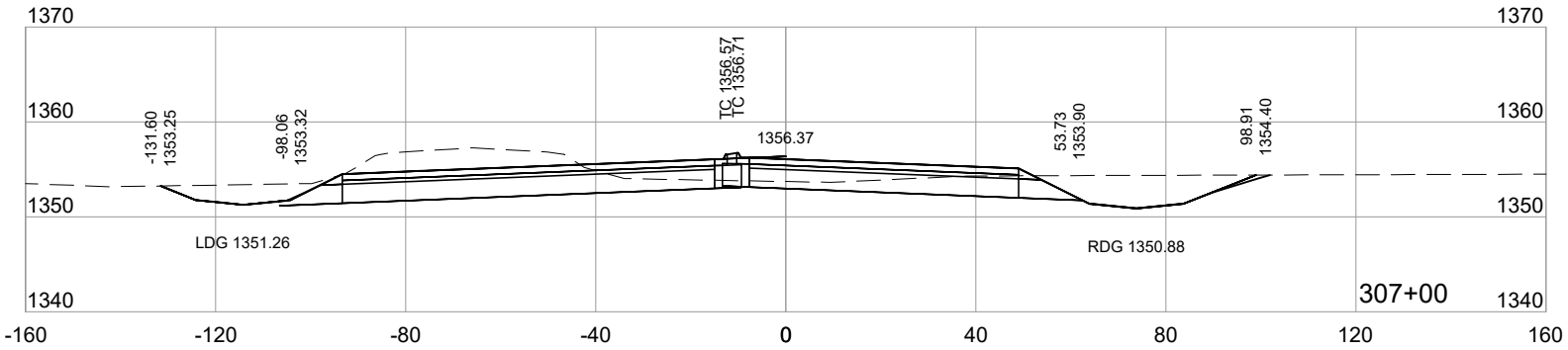
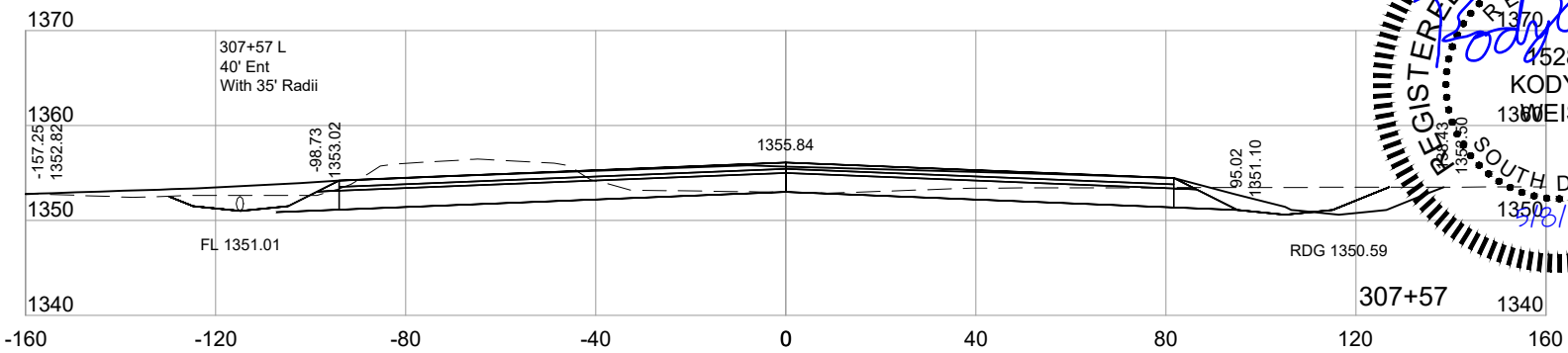
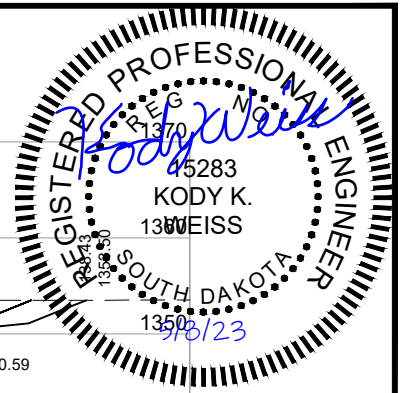
All costs associated with installation in concrete will be incidental to the sign installation.

REMOVE CONCRETE FOOTING

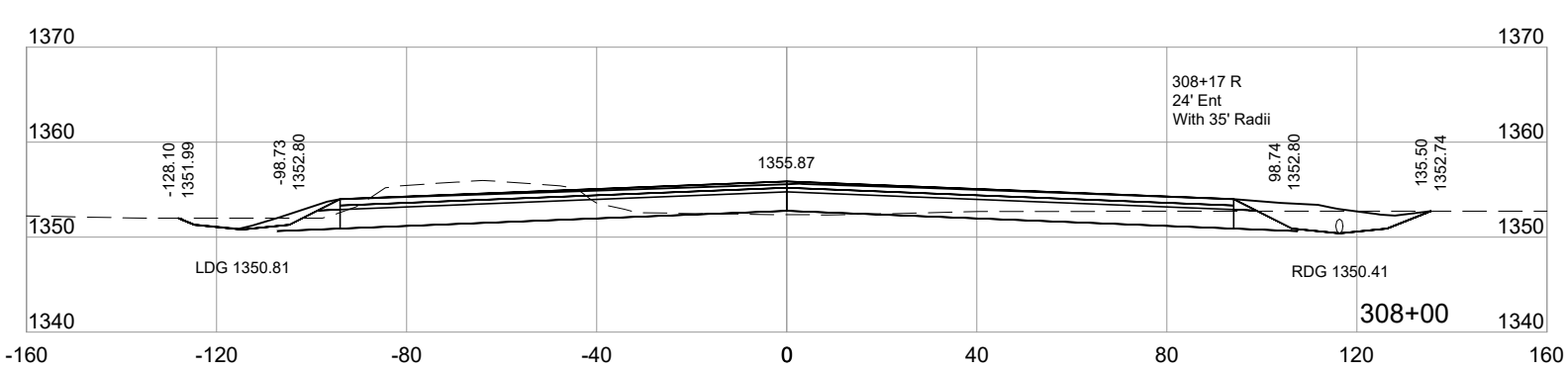
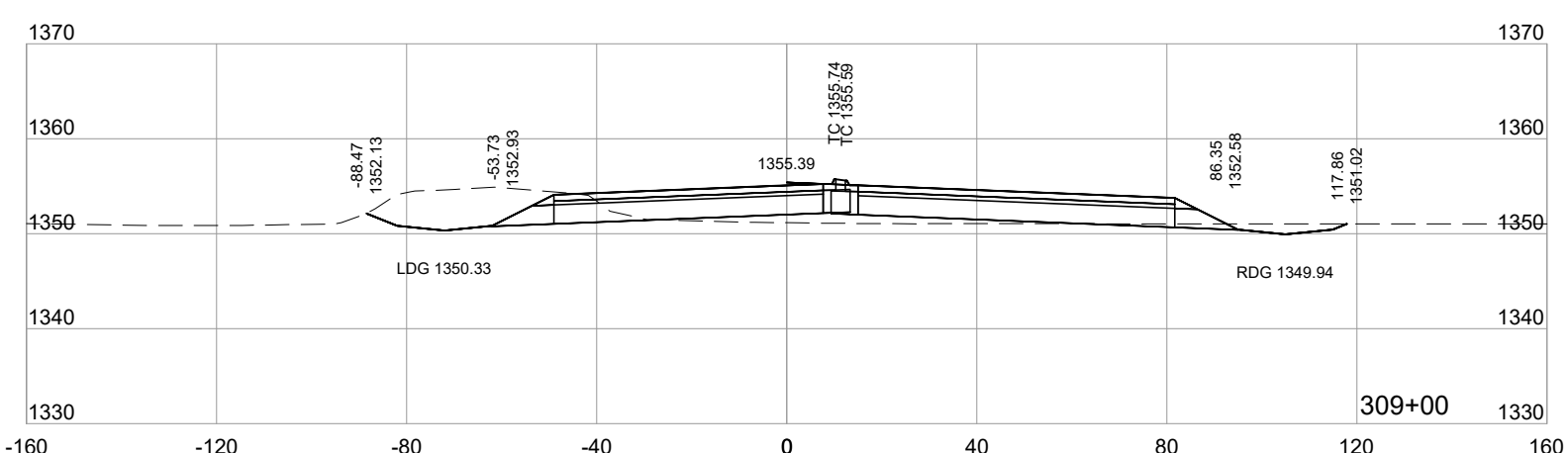
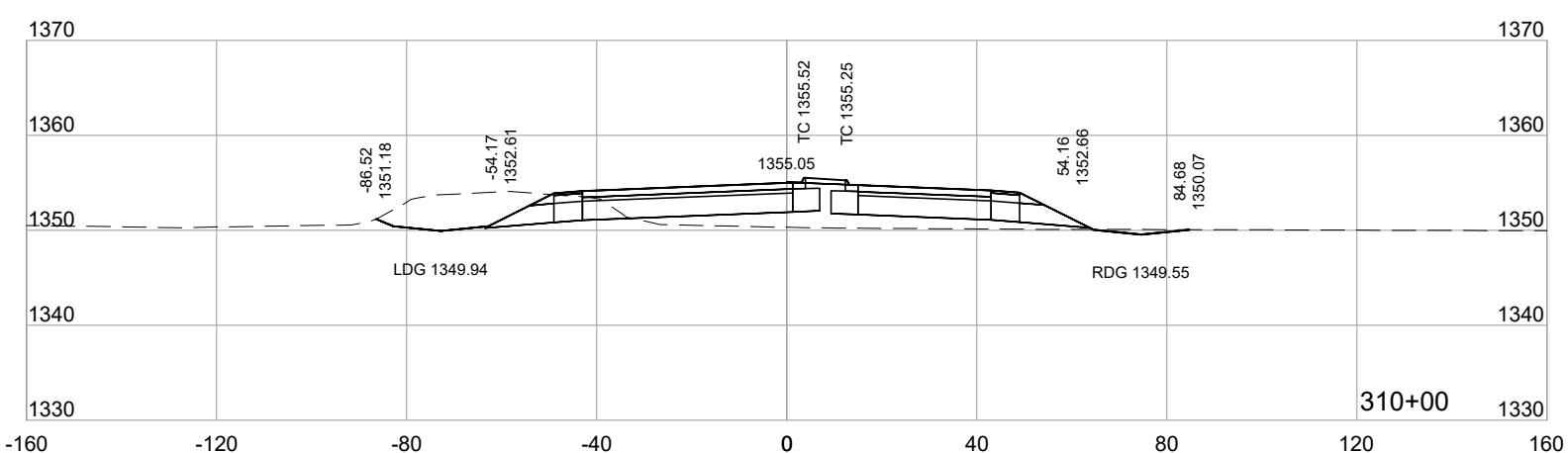
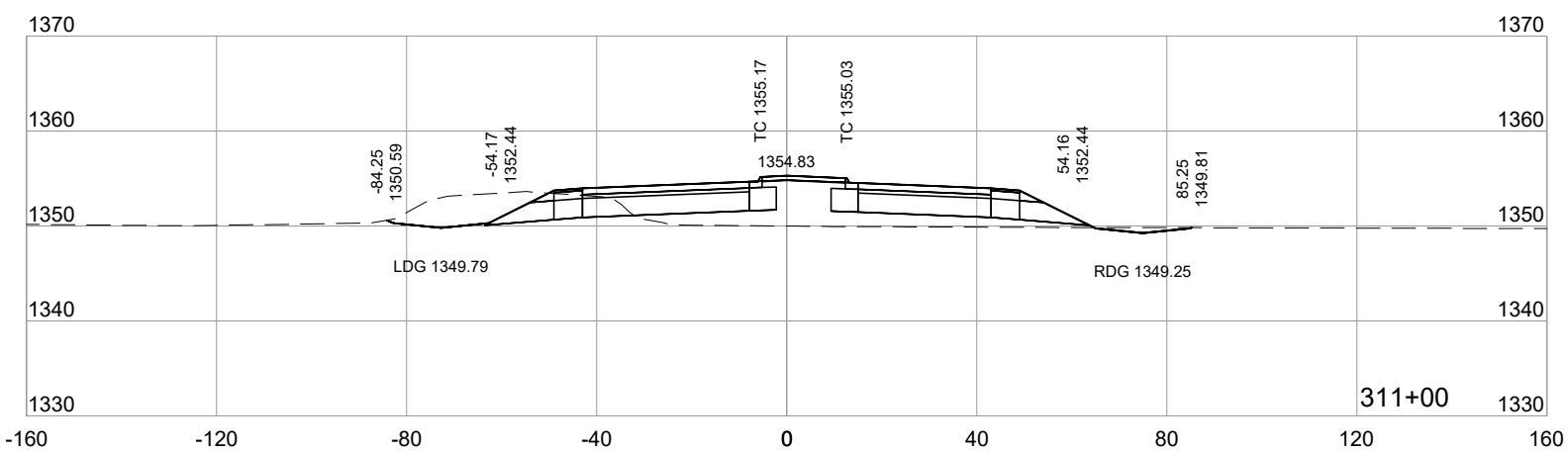
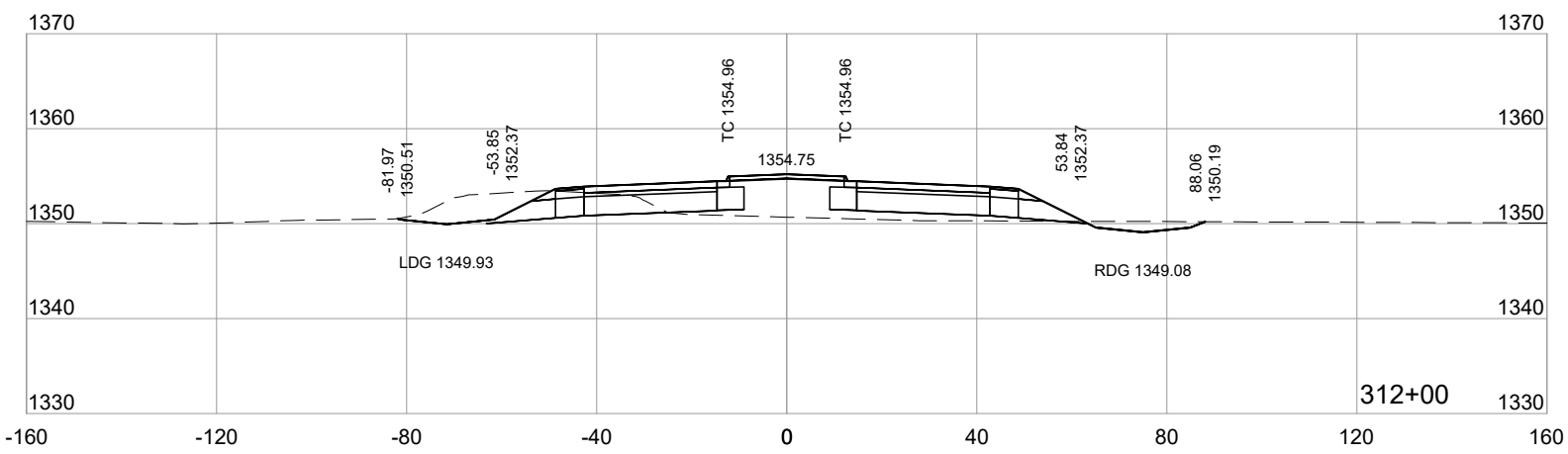
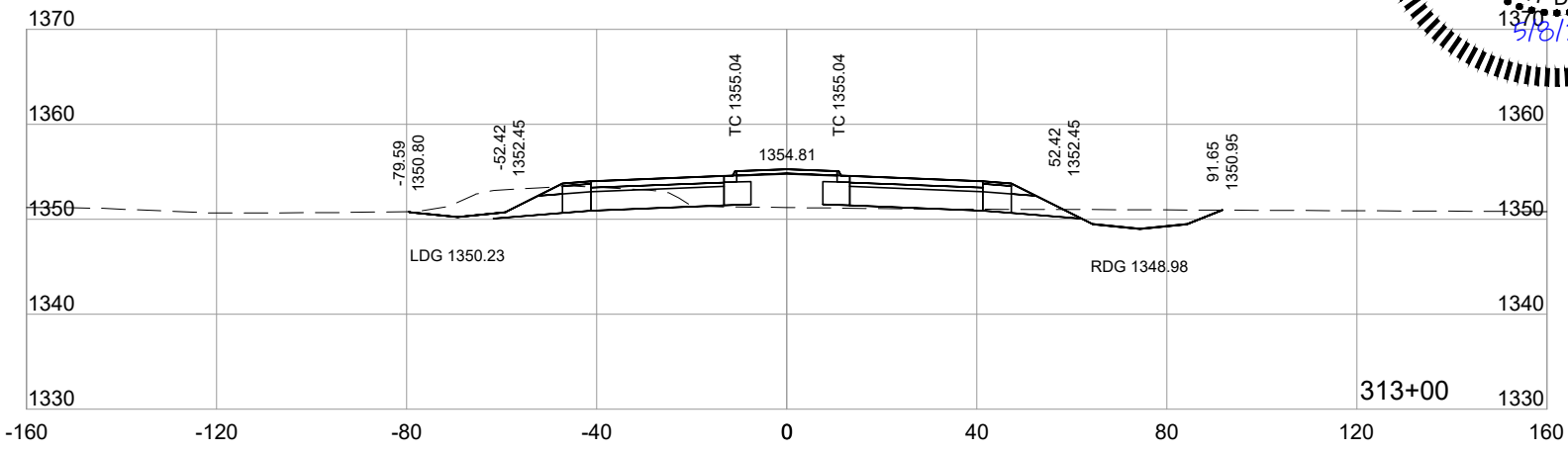
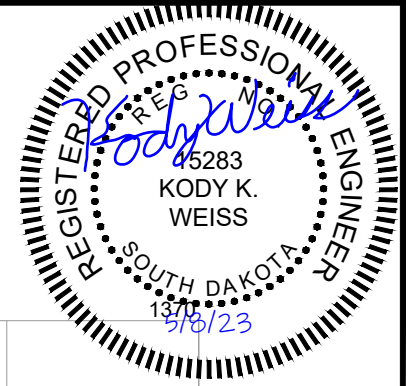
Concrete footings that are to be removed will be removed by the Contractor to a minimum of 2' below the ground surface. Restoration of the disturbed area will be to the satisfaction of the Engineer.

All costs for removing the concrete footings will be incidental to the contract lump sum price for "Remove Concrete Footing(s)".

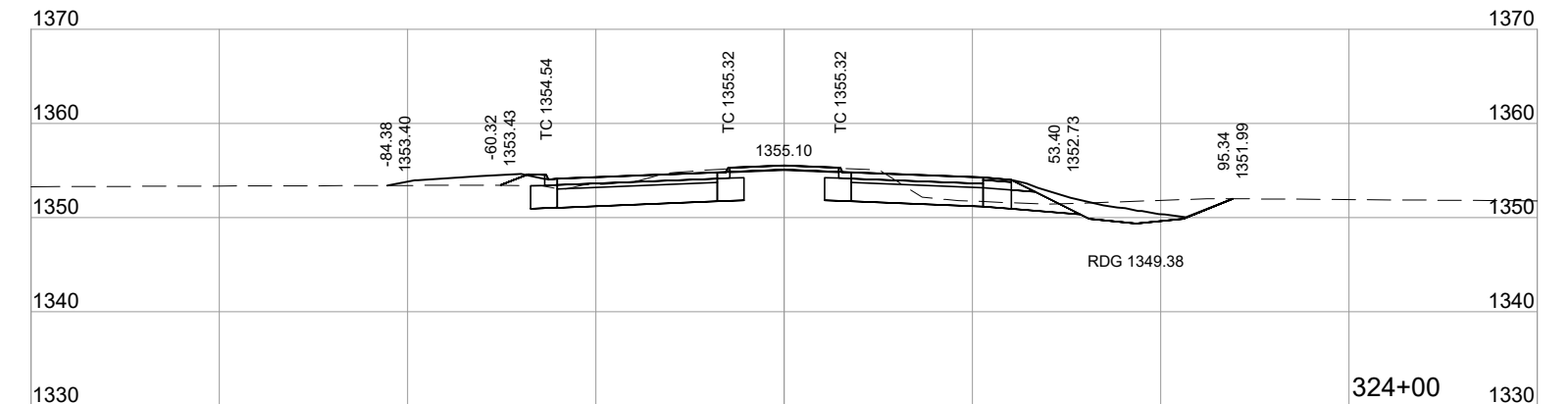
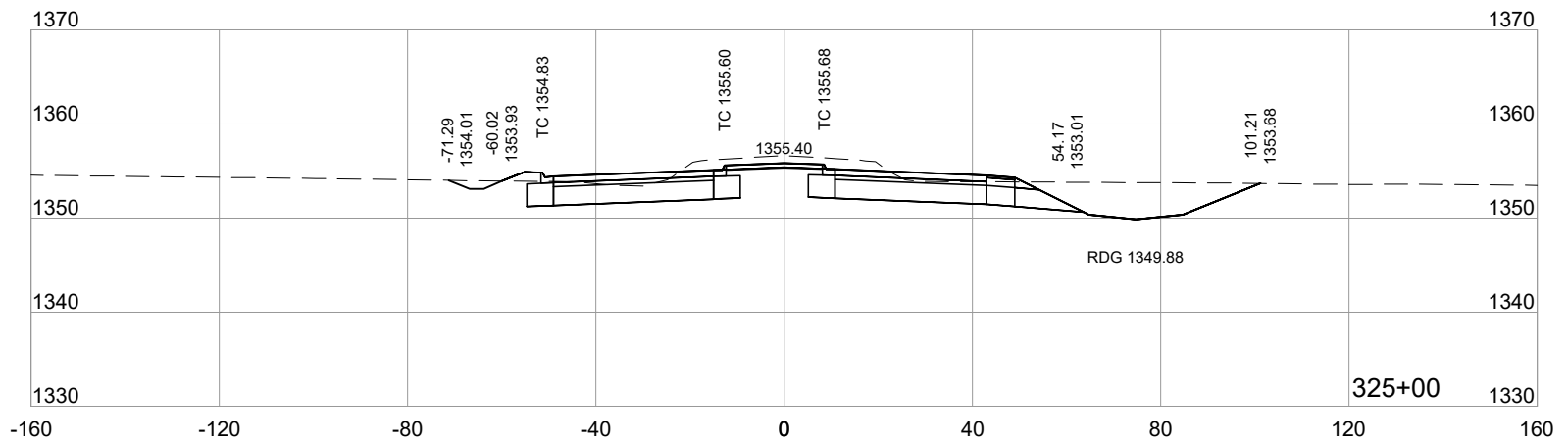
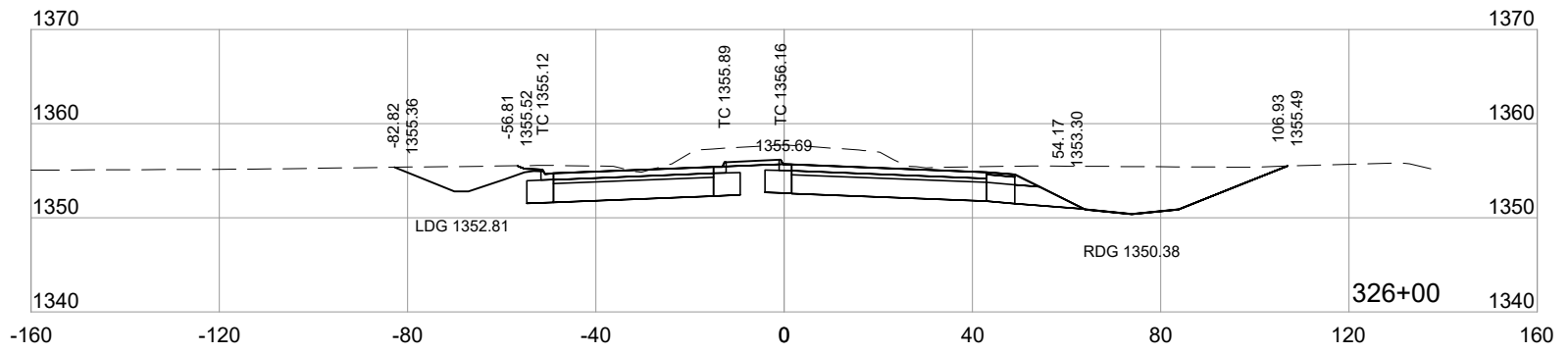
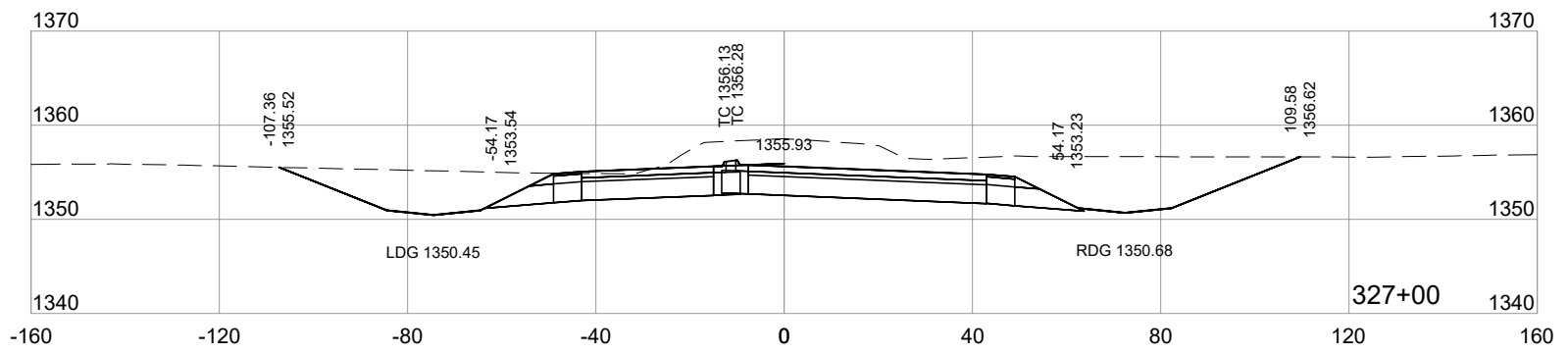
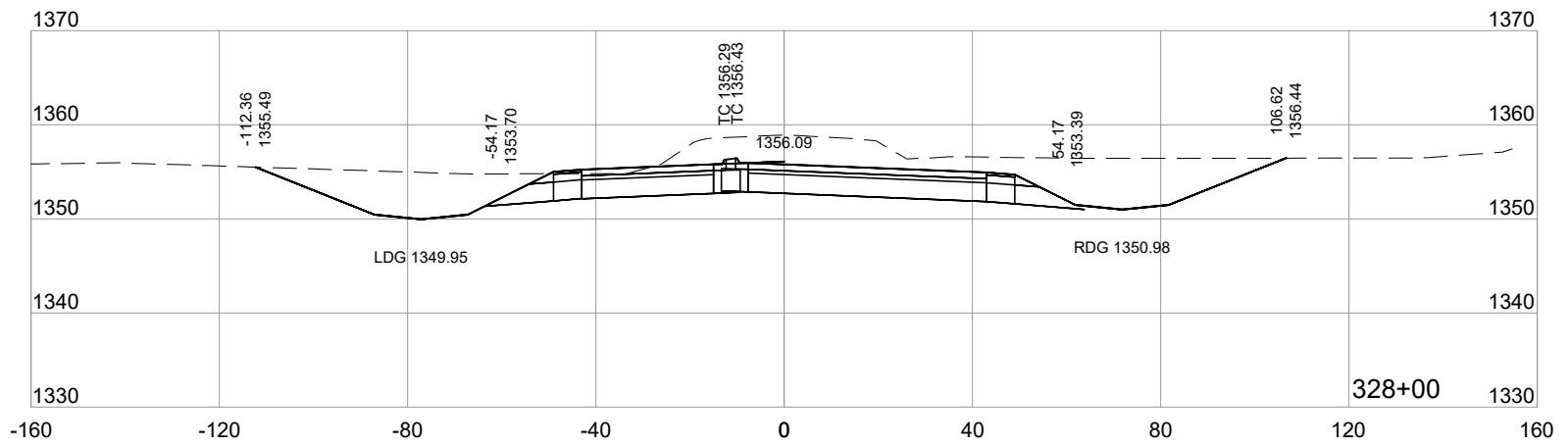
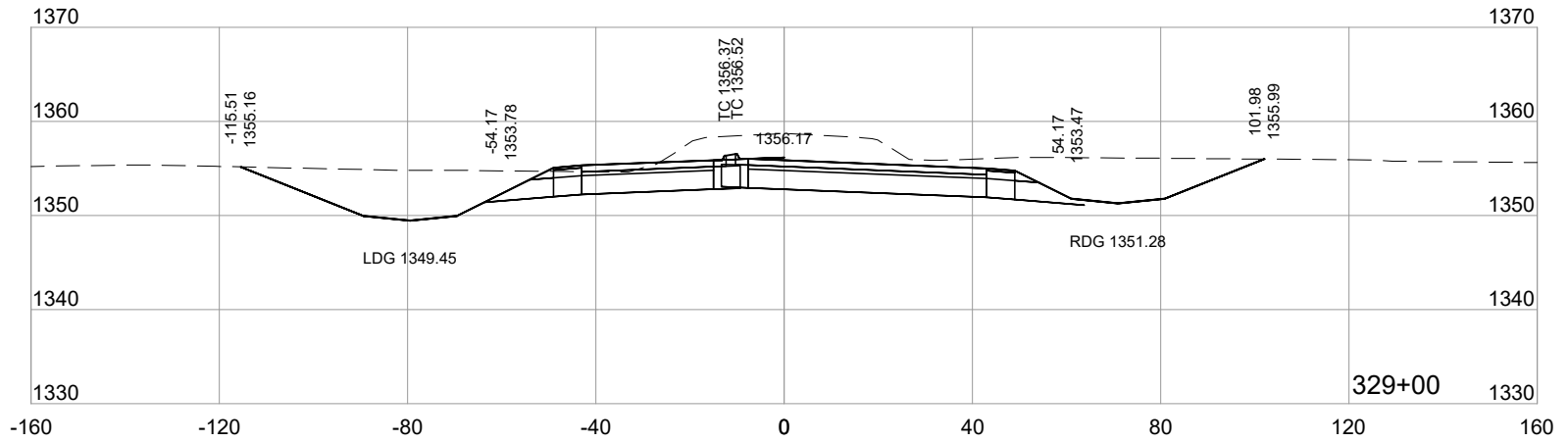
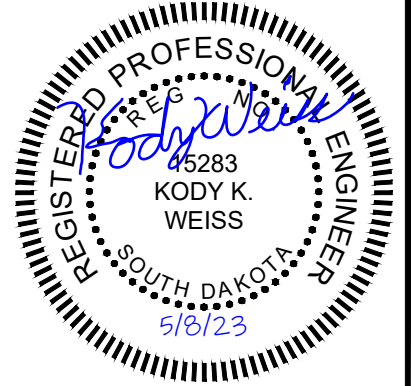




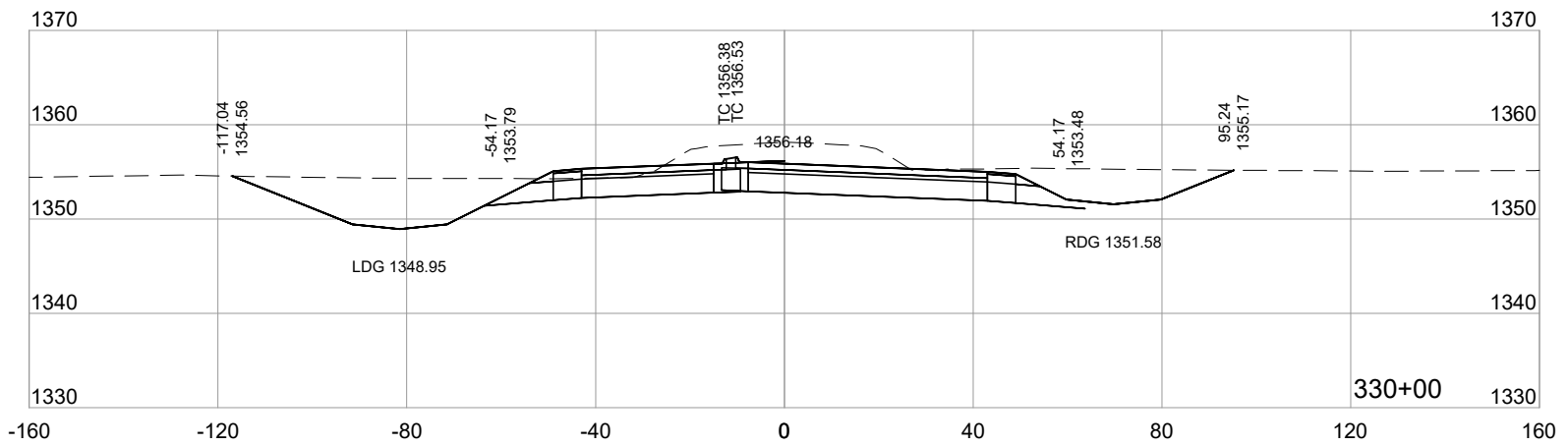
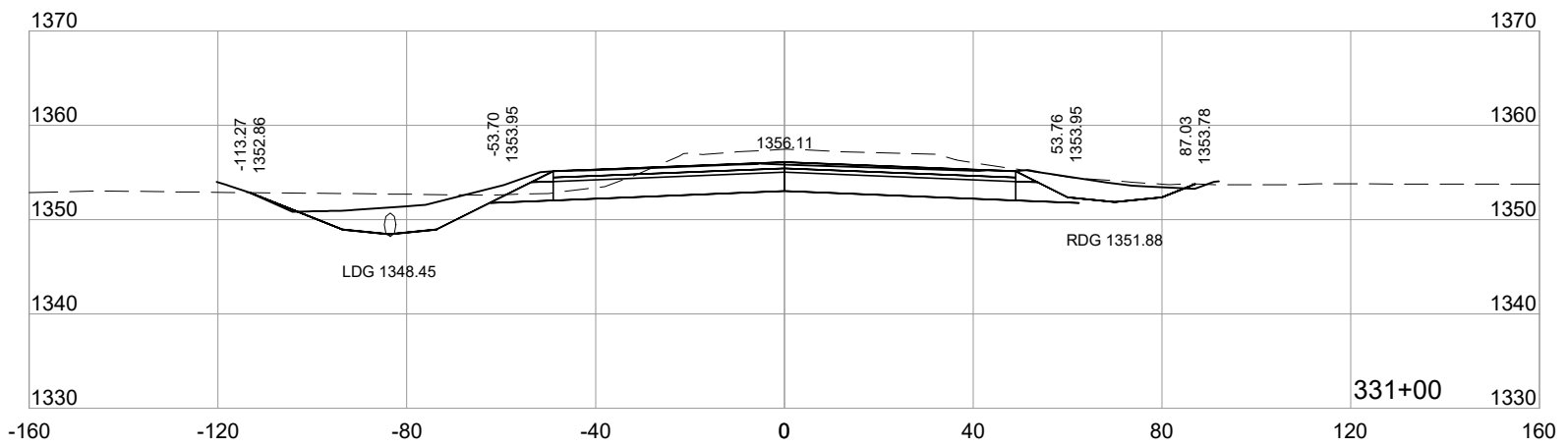
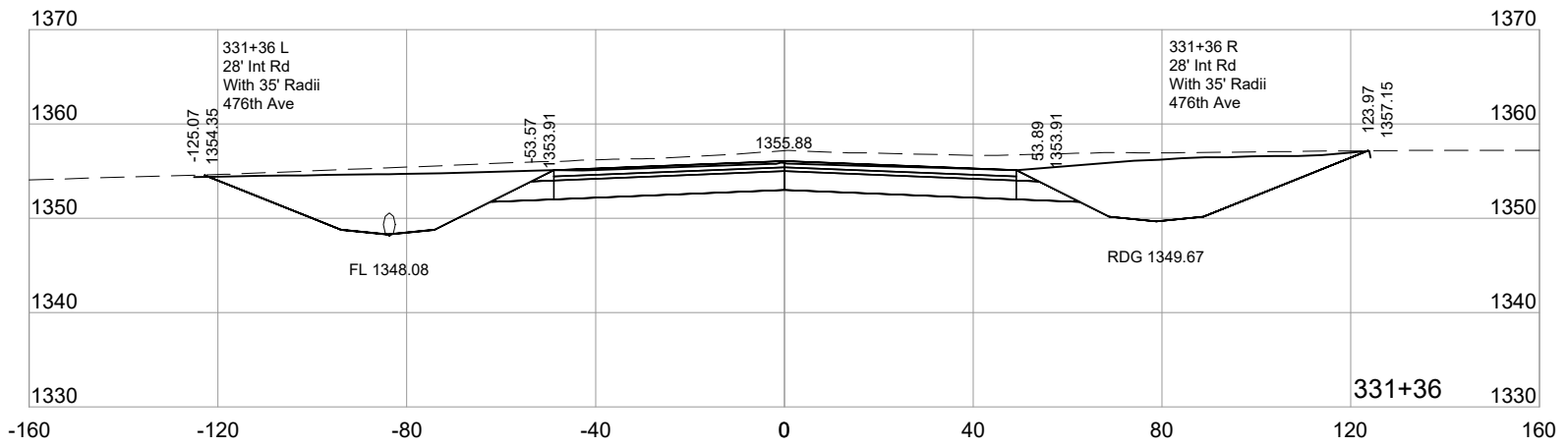
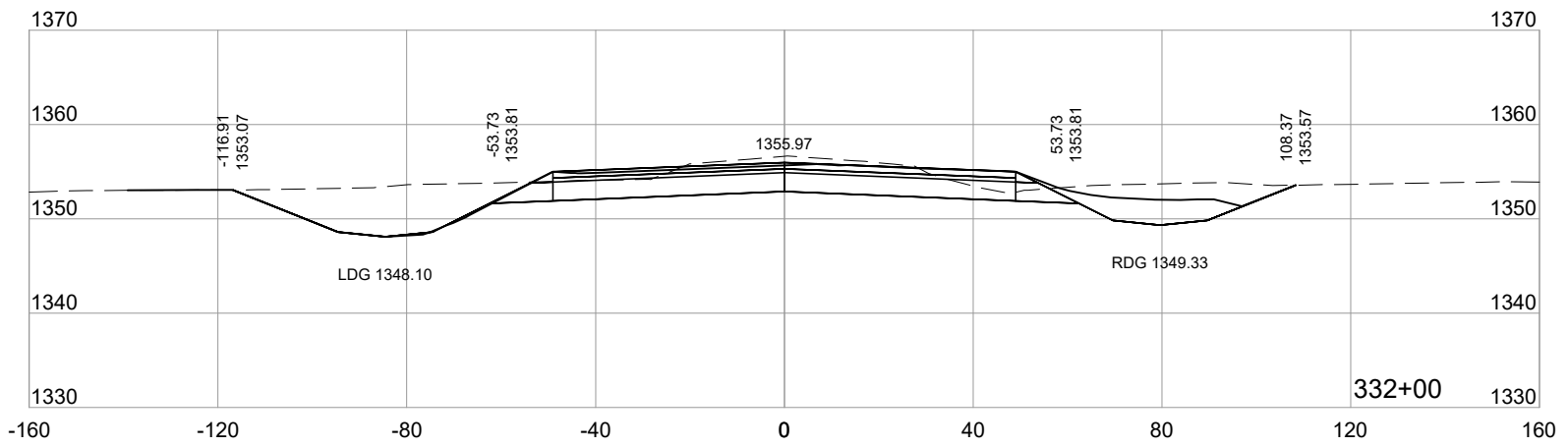
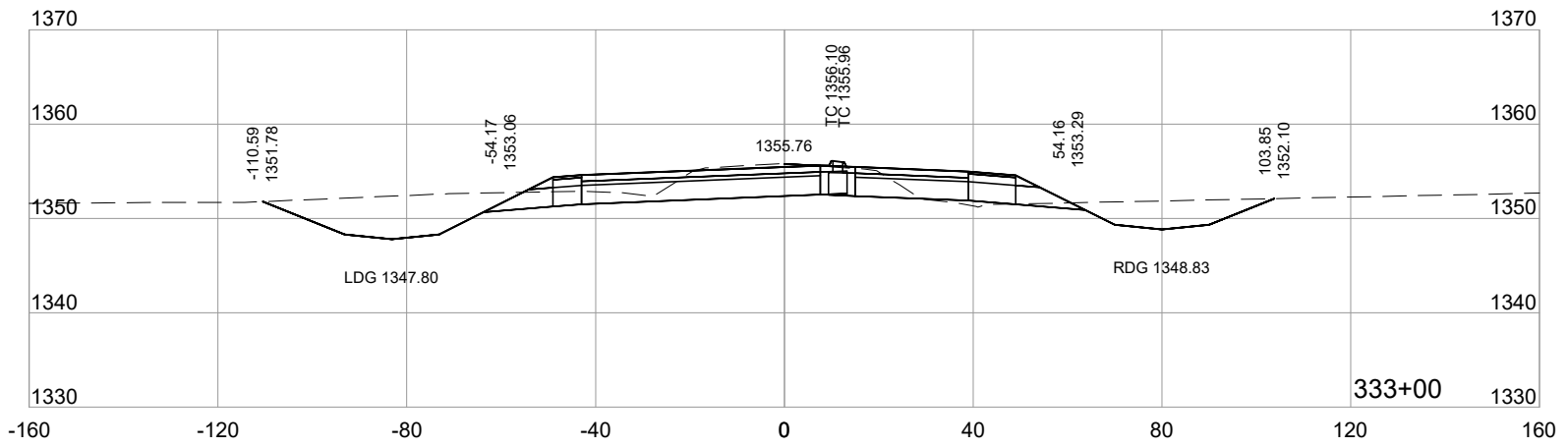
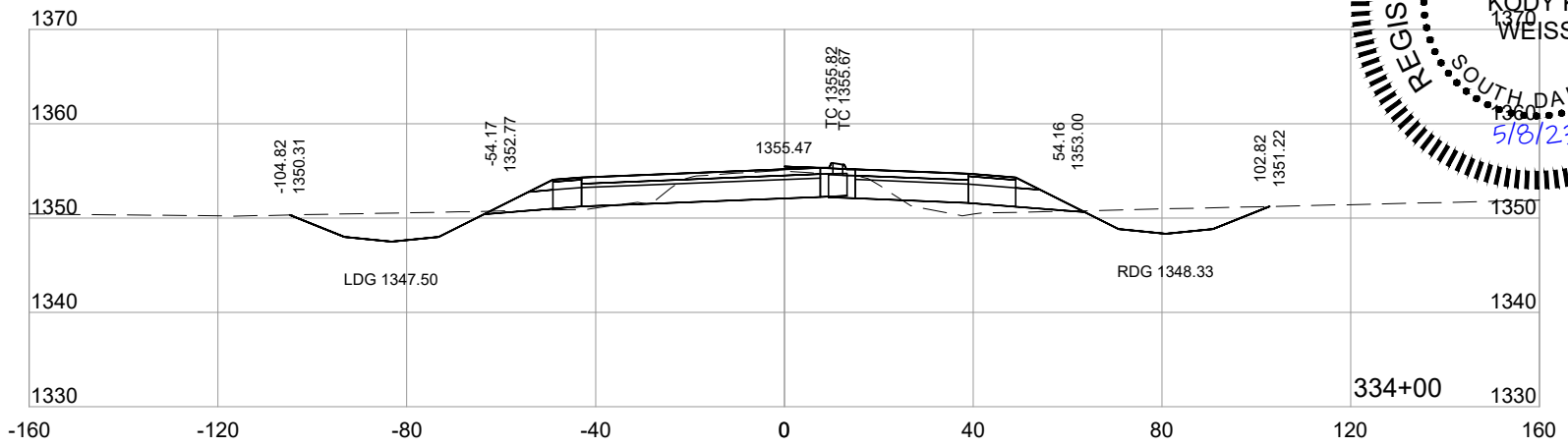
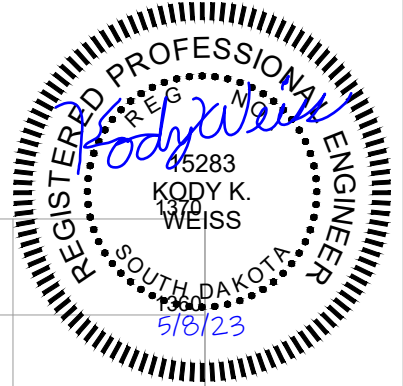
Muck
 Unstable



Muck
 Unstable



Muck
 Unstable

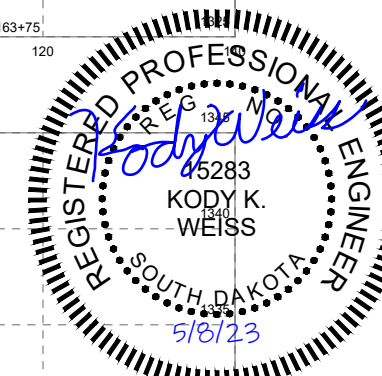
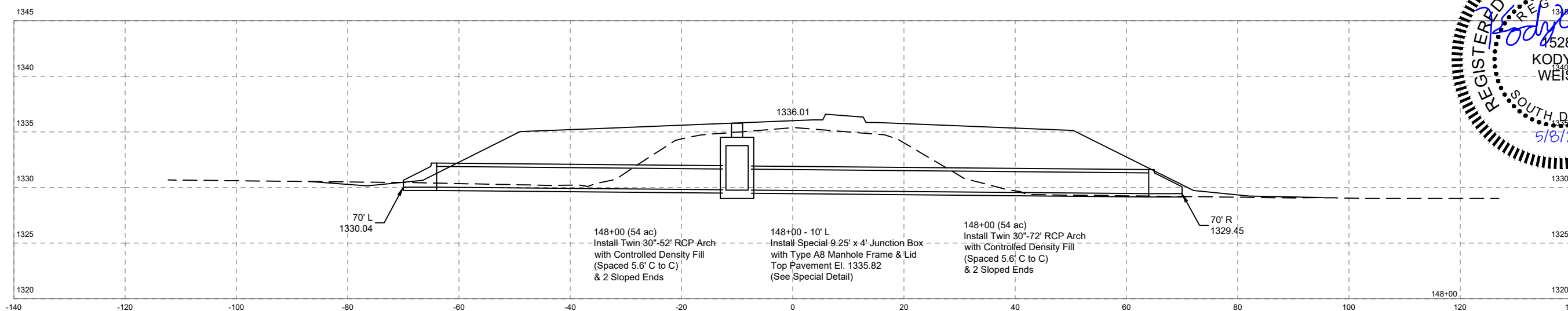
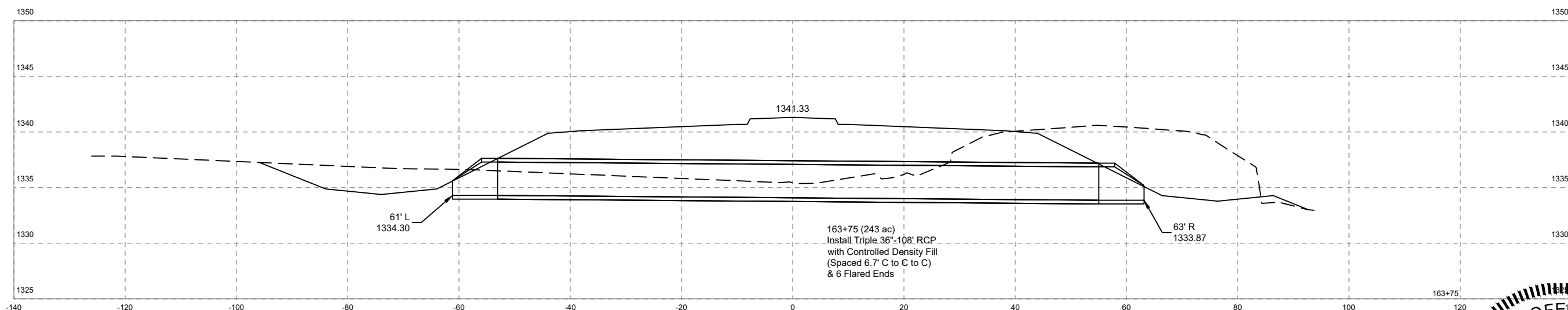
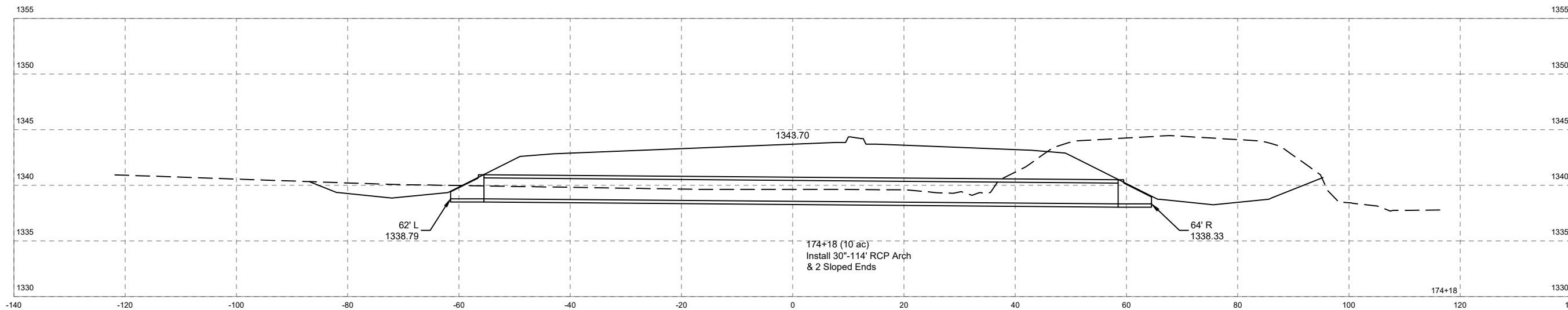


Muck
 Unstable

US HWY 18 MAINLINE PIPE SECTIONS

| | | | |
|-----------------------------|-----------------|--------------|-----------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
| | NH 0018(157)438 | Z3 | Z19 |

Plotting Date: 12/01/2022 Rev 5/08/2023 KKW

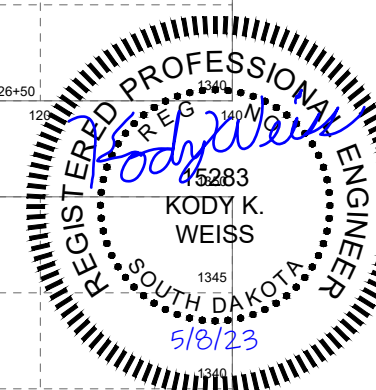
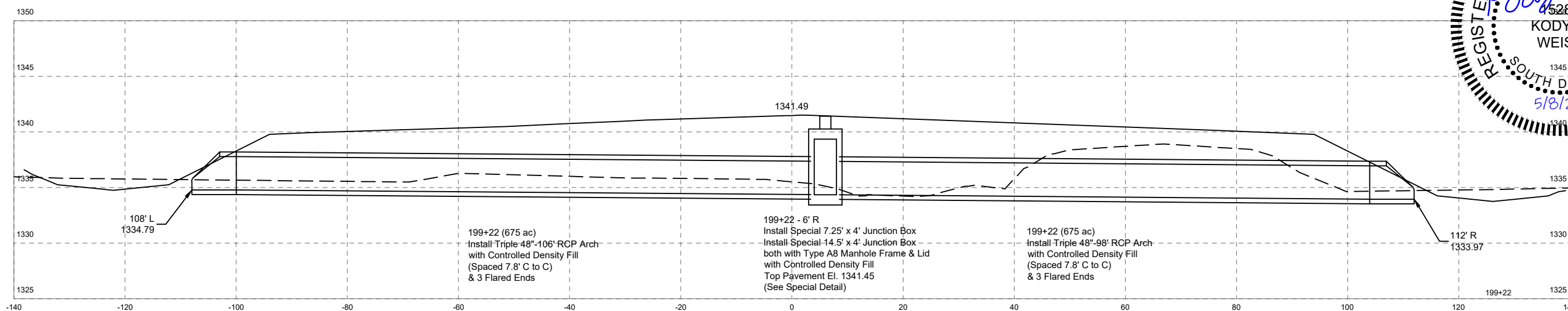
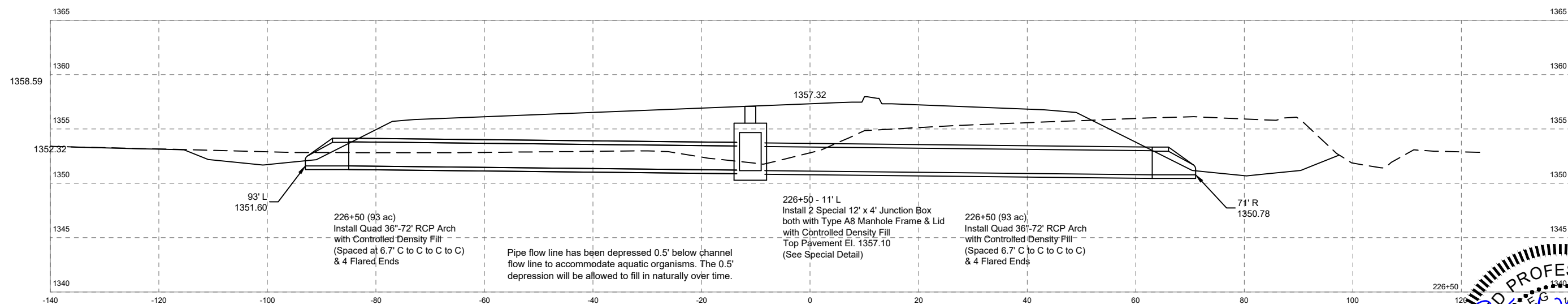
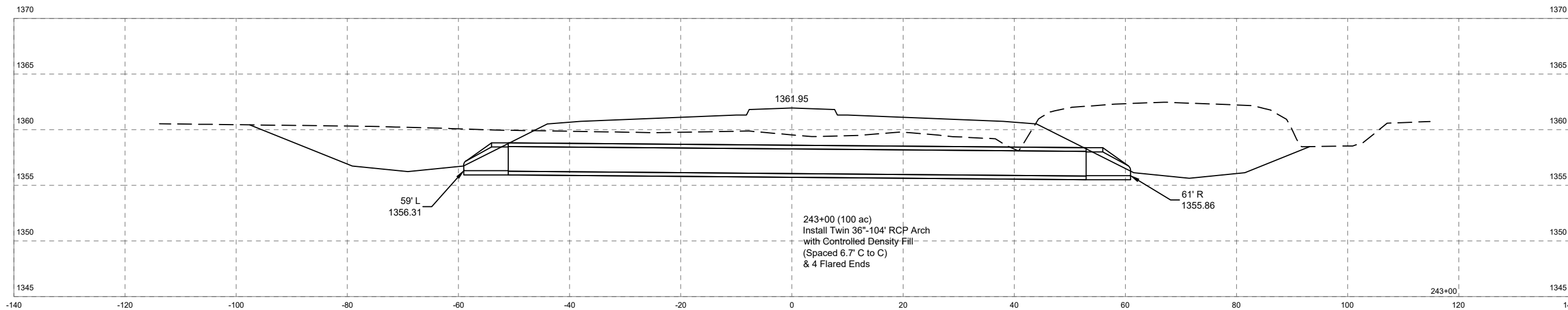


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US HWY 18 MAINLINE PIPE SECTIONS

| | | | |
|-----------------------------|-----------------|--------------|-----------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
| | NH 0018(157)438 | Z4 | Z19 |

Plotting Date: 12/01/2022 Rev 5/08/2023 KKW

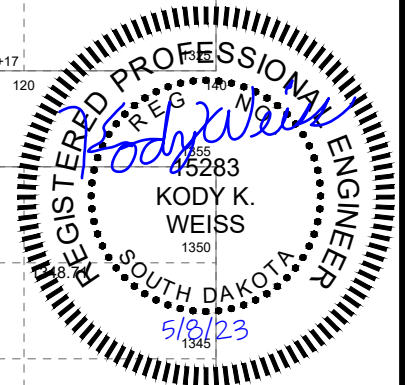
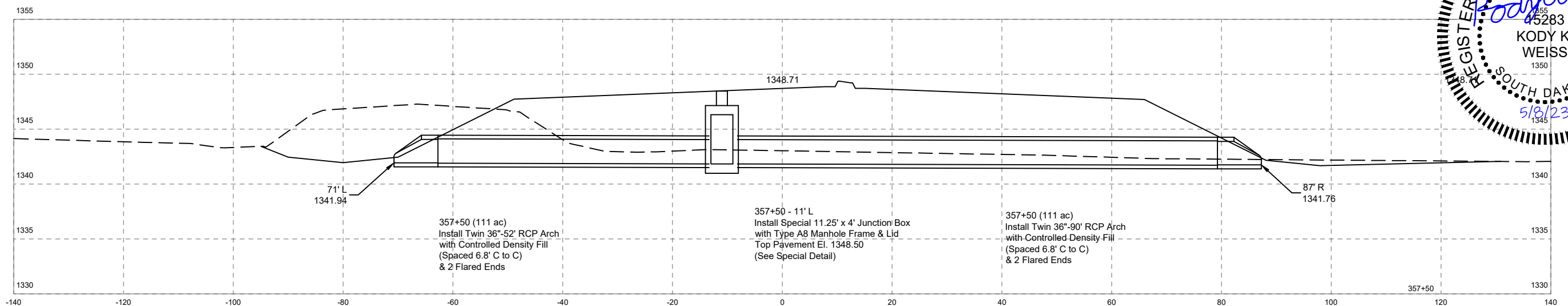
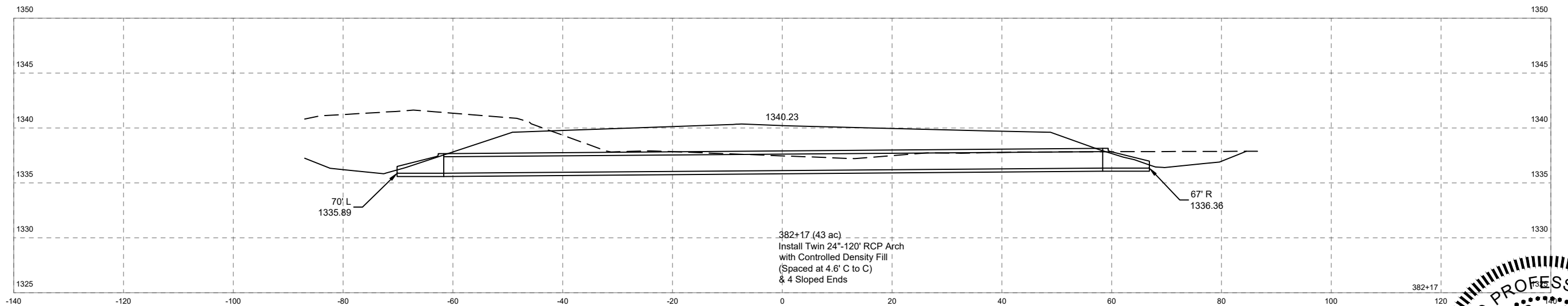
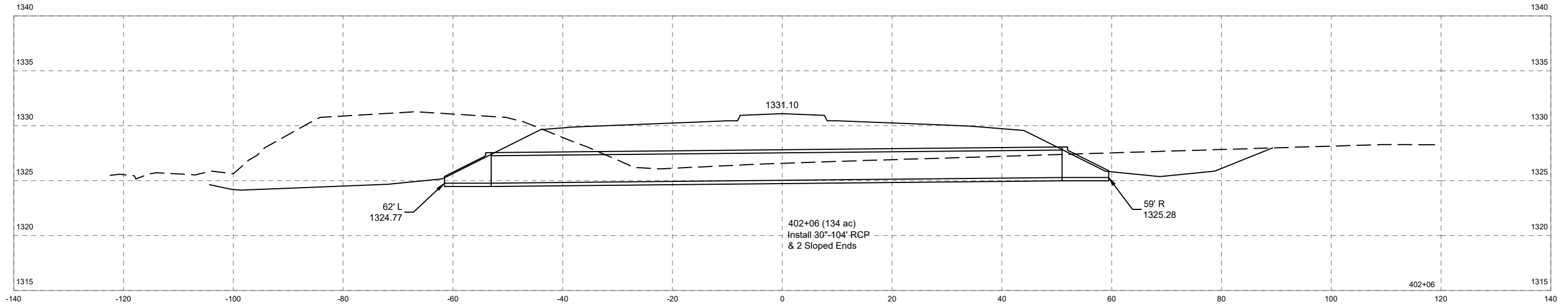


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PLOT DATE: 5/5/2023 3:25 PM Kody Weiss

US HWY 18 MAINLINE PIPE SECTIONS

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|-----------------------------|-----------------|--------------|-----------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
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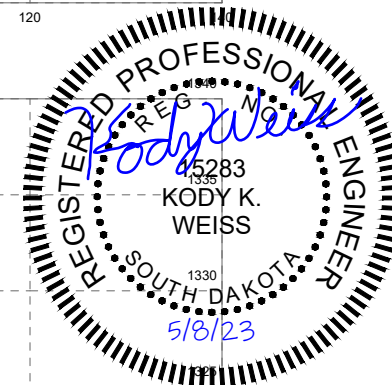
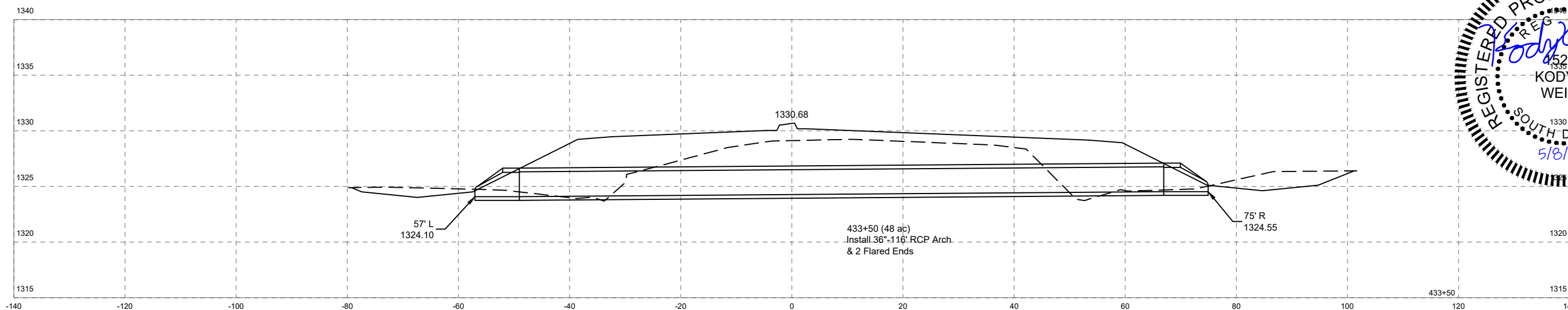
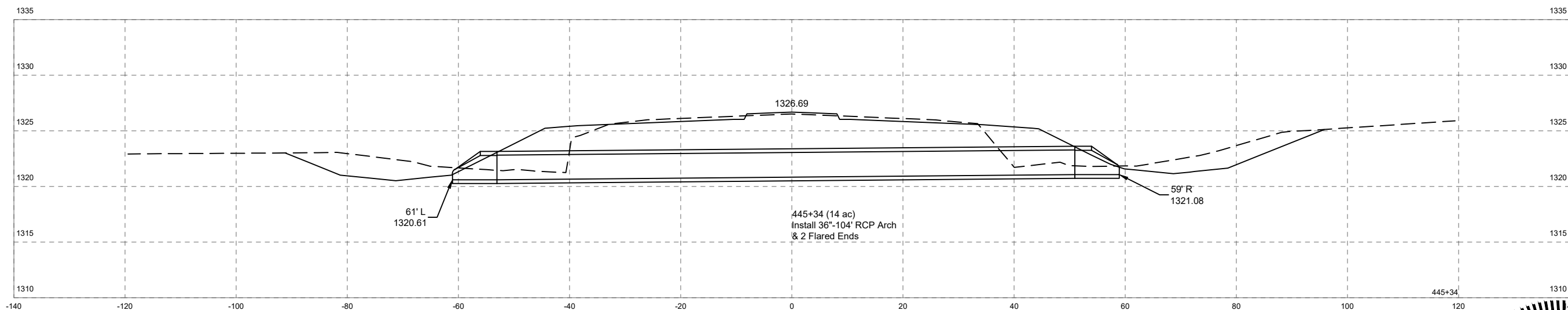
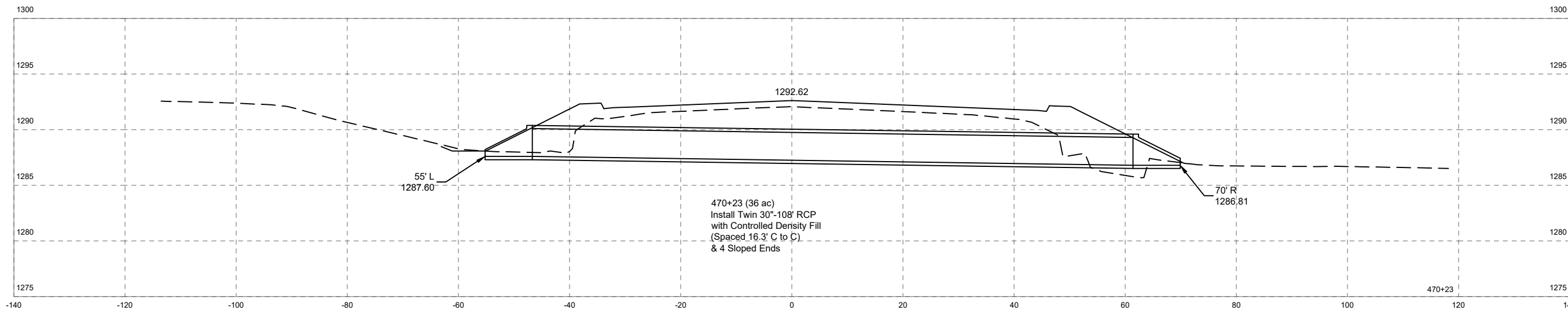
Plotting Date: 12/01/2022 Rev 5/08/2023 KKW



US HWY 18 MAINLINE PIPE SECTIONS

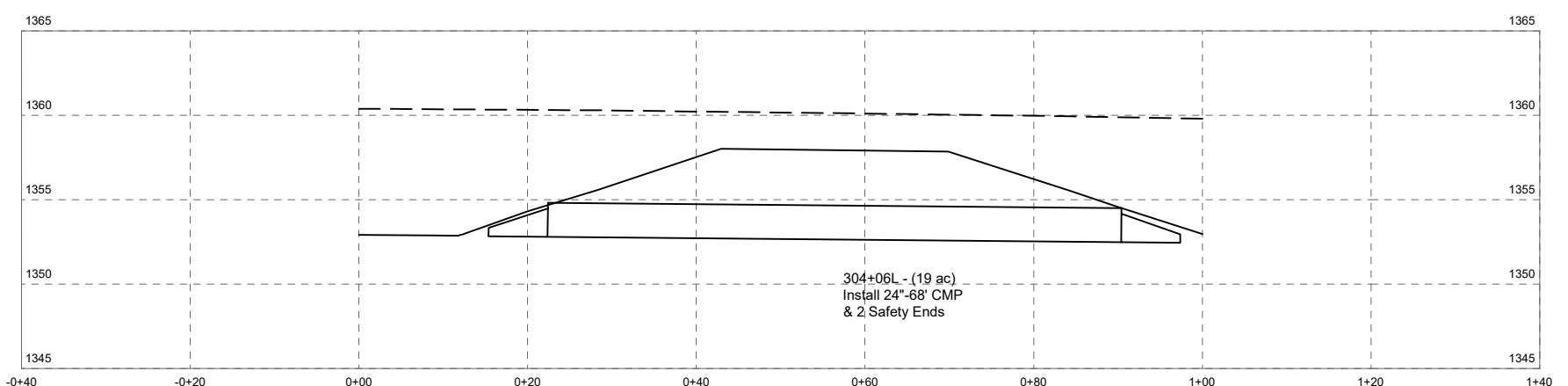
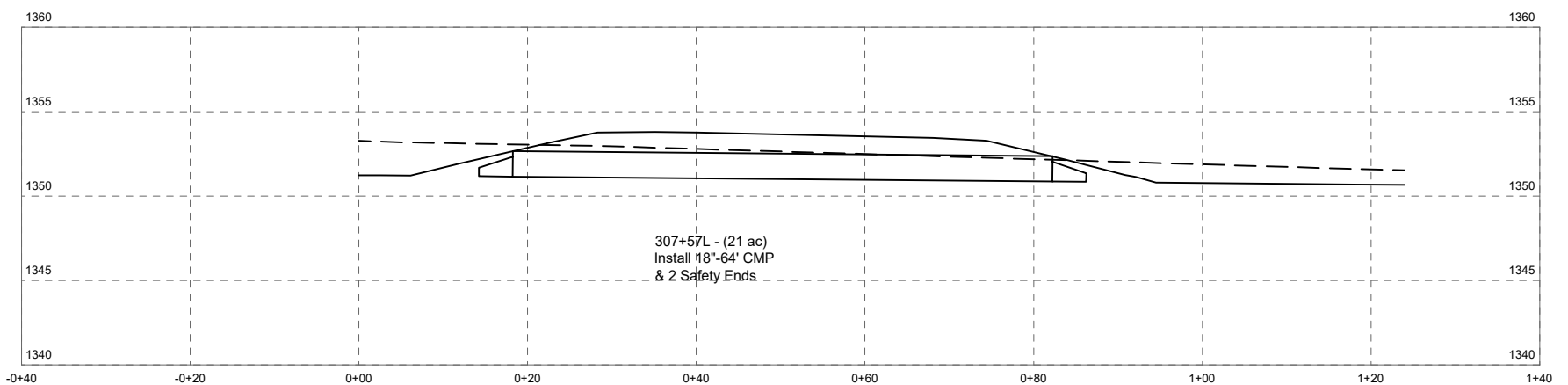
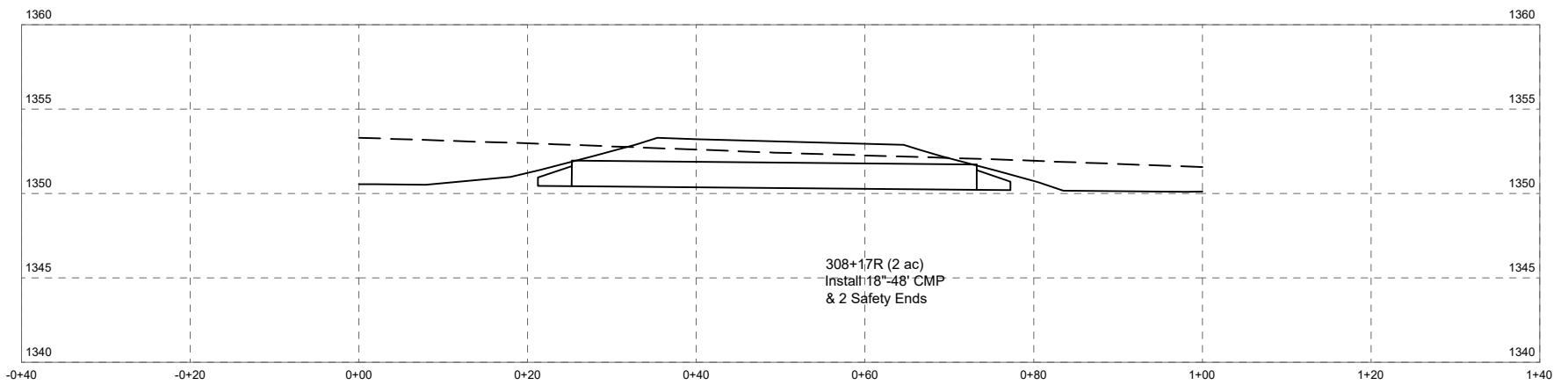
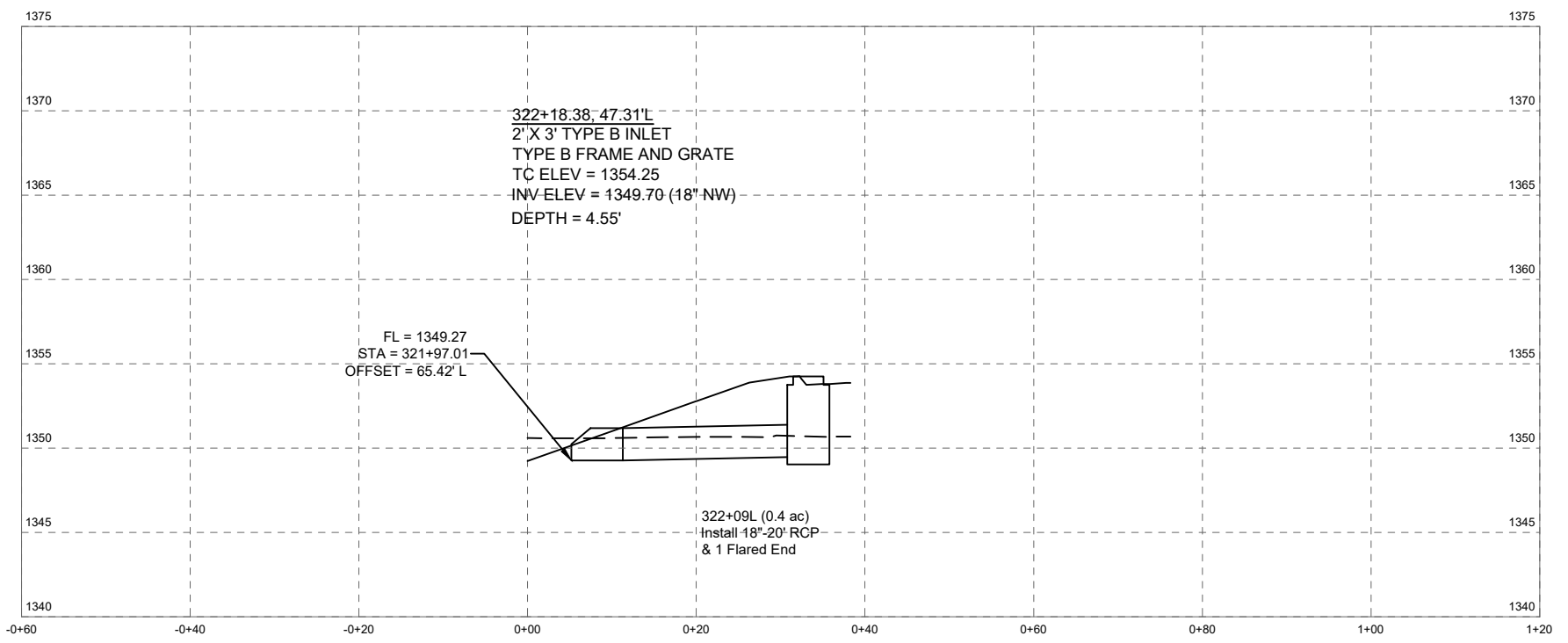
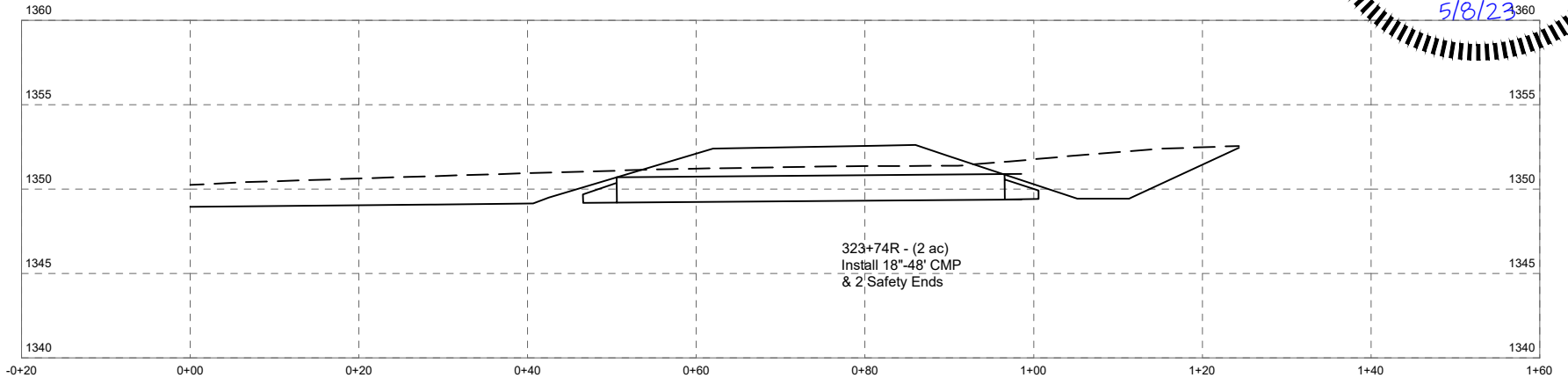
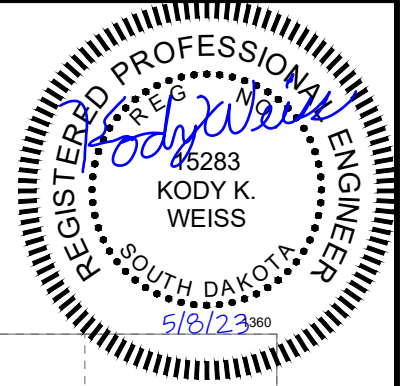
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Plotting Date: 12/01/2022 Rev 5/08/2023 KKW



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US HWY 18 APPROACH PIPE SECTIONS



US HWY 18 APPROACH PIPE SECTIONS

