



PROJECT	SHEET NO.	TOTAL SHEETS
SHERIDAN LAKE ROAD RECONSTRUCTION P 6480(4) PCN 5777	B1	B227
PLOTING DATE: 1/9/20		

FOR BIDDING PURPOSES ONLY

SECTION B - GRADING PLANS

INDEX OF SHEETS

- B1: General Layout w/Index
- B2-B32: Estimate w/General Notes & Tables
- B33-B35: Typical Sections
- B36-B40: Horizontal Alignment Sheets
- B41-B42: Control Data Sheets
- B43: Topography Symbology & Legend
- B44-B154: Plan & Profile Sheets
- B155-B182: Curb & Gutter Sheets
- B182-B184: Curb Ramp Details
- B183-B190: Guardrail Layouts
- B191-B192: Special Details
- B193-B227: Standard Plates

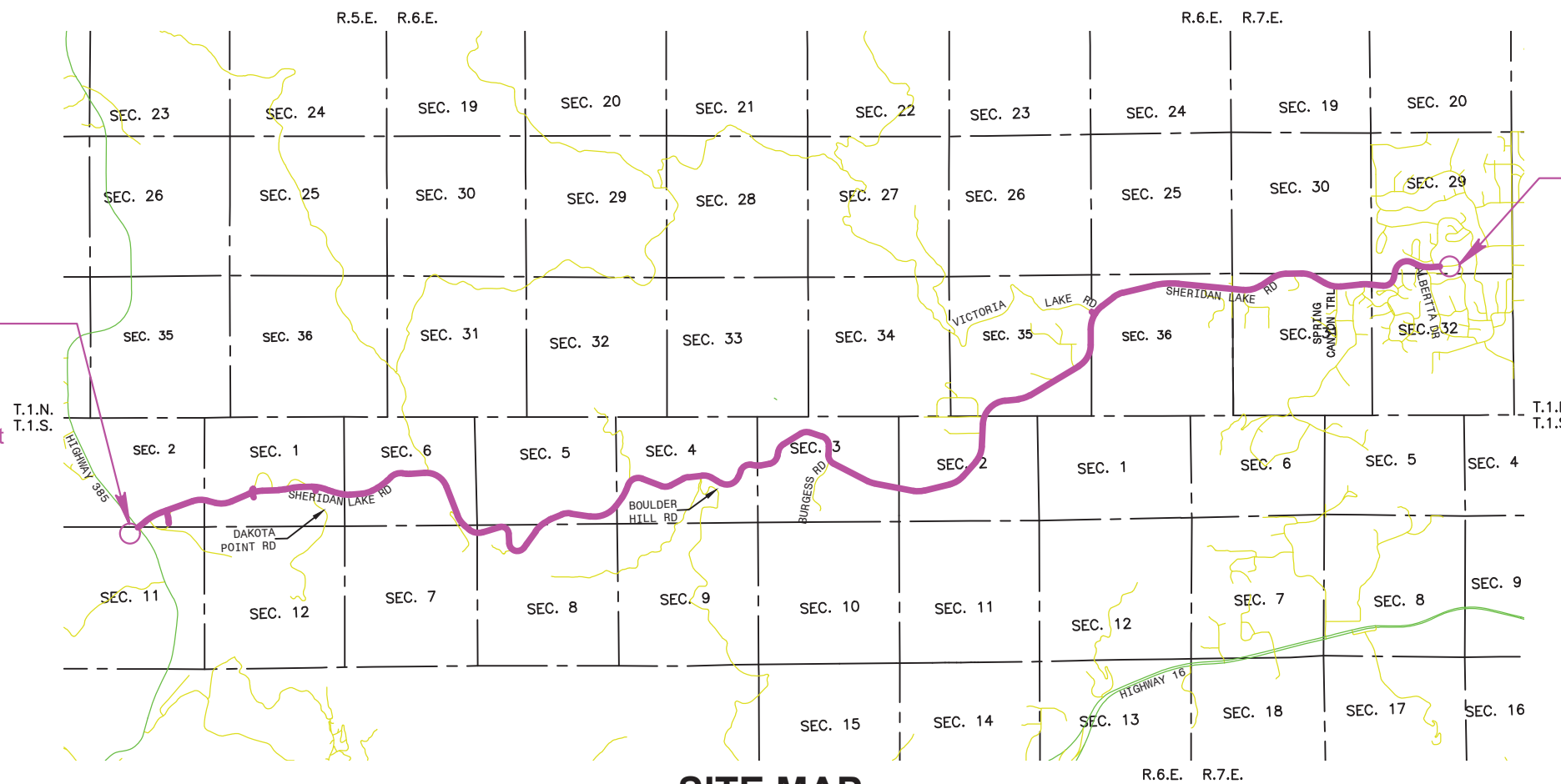


BEGIN P 6480(04)

Station 1+00.0 is 157.73' East and 13.00' North of the South 1/4 corner of Section 2, Township 1 South, Range 5 East of the Black Hills Meridian

END P 6480(04)

Station 595+66.0 is 262.78' North and 489.61' West of the South 1/4 corner of Section 29, Township 1 North, Range 7 East of the Black Hills Meridian



SITE MAP NOT TO SCALE



- Civil Engineering
- Geospatial Solutions
- Water Resources
- Transportation
- Land Surveying



SECTION B ESTIMATE OF QUANTITIES

FOR BIDDING PURPOSES ONLY

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
004E0030	Maintenance of Traffic Diversion(s)	Lump Sum	LS
004E0050	Remove Traffic Diversion(s)	Lump Sum	LS
009E0010	Mobilization	Lump Sum	LS
009E3230	Grade Staking	20.464	Mile
009E3245	Final Cross Section Survey	9.818	Mile
009E3250	Miscellaneous Staking	9.818	Mile
009E3280	Slope Staking	9.818	Mile
009E3290	Structure Staking	5	Each
009E3300	Three Man Survey Crew	100.0	Hour
009E3320	Checker	Lump Sum	LS
100E0020	Clear and Grub Tree	625	Each
100E0100	Clearing	Lump Sum	LS
110E0300	Remove Concrete Curb and/or Gutter	123	Ft
110E0400	Remove Drop Inlet	2	Each
110E0600	Remove Fence	52,688	Ft
110E1130	Remove Concrete Driveway Pavement	233.0	SqYd
110E4330	Salvage W Beam Guardrail	3,175.4	Ft
110E5600	Salvage Cattle Guard	2	Each
110E7040	Remove Gate for Reset	7	Each
110E7600	Remove Cattle Guard for Reset	2	Each
110E7802	Remove Fence for Reset	1,207	Ft
120E1000	Muck Excavation	384	CuYd
120E1100	Unclassified/Rock Excavation	755,525	CuYd
120E2000	Undercutting	41,118	CuYd
120E6100	Water for Embankment	6,612.0	MGal
240E0010	Obliterate Old Road	55	Sta
250E0020	Incidental Work, Grading	Lump Sum	LS
270E0040	Salvage and Stockpile Asphalt Mix and Granular Base Material	59,496.0	Ton
380E3520	6" PCC Approach Pavement	640.3	SqYd
380E4050	8" PCC Fillet Section	2,343.6	SqYd
421E0100	Pipe Culvert Undercut	100	CuYd
450E0122	18" RCP Class 2, Furnish	12,520	Ft
450E0130	18" RCP, Install	12,520	Ft
450E0142	24" RCP Class 2, Furnish	1,680	Ft
450E0150	24" RCP, Install	1,680	Ft
450E0162	30" RCP Class 2, Furnish	256	Ft
450E0163	30" RCP Class 3, Furnish	302	Ft
450E0170	30" RCP, Install	558	Ft
450E0182	36" RCP Class 2, Furnish	496	Ft
450E0184	36" RCP Class 4, Furnish	258	Ft
450E0185	36" RCP Class 5, Furnish	746	Ft

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
450E0190	36" RCP, Install	1,500	Ft
450E0202	48" RCP Class 2, Furnish	270	Ft
450E0204	48" RCP Class 4, Furnish	366	Ft
450E0210	48" RCP, Install	636	Ft
450E0212	54" RCP Class 2, Furnish	112	Ft
450E0220	54" RCP, Install	112	Ft
450E0224	60" RCP Class 4, Furnish	206	Ft
450E0230	60" RCP, Install	206	Ft
450E0243	72" RCP Class 3, Furnish	320	Ft
450E0250	72" RCP, Install	320	Ft
450E0262	84" RCP Class 2, Furnish	120	Ft
450E0270	84" RCP, Install	120	Ft
450E0408	18" RCP Bend, Furnish	5	Each
450E0409	18" RCP Bend, Install	5	Each
450E0700	RCP Tee, Furnish	3	Each
450E0701	RCP Tee, Install	3	Each
450E2008	18" RCP Flared End, Furnish	26	Each
450E2009	18" RCP Flared End, Install	26	Each
450E2028	36" RCP Flared End, Furnish	18	Each
450E2029	36" RCP Flared End, Install	18	Each
450E2036	48" RCP Flared End, Furnish	8	Each
450E2037	48" RCP Flared End, Install	8	Each
450E2040	54" RCP Flared End, Furnish	2	Each
450E2041	54" RCP Flared End, Install	2	Each
450E2044	60" RCP Flared End, Furnish	2	Each
450E2045	60" RCP Flared End, Install	2	Each
450E2052	72" RCP Flared End, Furnish	4	Each
450E2053	72" RCP Flared End, Install	4	Each
450E2060	84" RCP Flared End, Furnish	2	Each
450E2061	84" RCP Flared End, Install	2	Each
450E2200	24" RCP Sloped End, Furnish	22	Each
450E2201	24" RCP Sloped End, Install	22	Each
450E2204	30" RCP Sloped End, Furnish	10	Each
450E2205	30" RCP Sloped End, Install	10	Each
450E3052	48" RCP Arch Class 2, Furnish	70	Ft
450E3060	48" RCP Arch, Install	70	Ft
450E3062	54" RCP Arch Class 2, Furnish	120	Ft
450E3070	54" RCP Arch, Install	120	Ft
450E4520	48" RCP Arch Flared End, Furnish	2	Each
450E4521	48" RCP Arch Flared End, Install	2	Each
450E4524	54" RCP Arch Flared End, Furnish	2	Each
450E4525	54" RCP Arch Flared End, Install	2	Each

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
450E4758	18" CMP 14 Gauge, Furnish	1,206	Ft
450E4760	18" CMP, Install	1,206	Ft
450E4768	24" CMP 14 Gauge, Furnish	106	Ft
450E4770	24" CMP, Install	106	Ft
450E4778	30" CMP 14 Gauge, Furnish	60	Ft
450E4780	30" CMP, Install	60	Ft
450E4788	36" CMP 14 Gauge, Furnish	286	Ft
450E4790	36" CMP, Install	286	Ft
450E4798	42" CMP 14 Gauge, Furnish	26	Ft
450E4800	42" CMP, Install	26	Ft
450E4808	48" CMP 14 Gauge, Furnish	214	Ft
450E4810	48" CMP, Install	214	Ft
450E5015	24" CMP Elbow, Furnish	2	Each
450E5016	24" CMP Elbow, Install	2	Each
450E5020	30" CMP Elbow, Furnish	2	Each
450E5021	30" CMP Elbow, Install	2	Each
450E5025	36" CMP Elbow, Furnish	6	Each
450E5026	36" CMP Elbow, Install	6	Each
450E5035	48" CMP Elbow, Furnish	4	Each
450E5036	48" CMP Elbow, Install	4	Each
450E5306	18" CMP Sloped End, Furnish	47	Each
450E5307	18" CMP Sloped End, Install	47	Each
450E5310	24" CMP Sloped End, Furnish	3	Each
450E5311	24" CMP Sloped End, Install	3	Each
450E5314	30" CMP Sloped End, Furnish	1	Each
450E5315	30" CMP Sloped End, Install	1	Each
450E5318	36" CMP Sloped End, Furnish	3	Each
450E5319	36" CMP Sloped End, Install	3	Each
450E5322	42" CMP Sloped End, Furnish	2	Each
450E5323	42" CMP Sloped End, Install	2	Each
450E5326	48" CMP Sloped End, Furnish	2	Each
450E5327	48" CMP Sloped End, Install	2	Each
450E8014	24" RCP to CMP Transition, Furnish	2	Each
450E8015	24" Pipe Transition, Install	2	Each
450E8019	30" RCP to CMP Transition, Furnish	1	Each
450E8020	30" Pipe Transition, Install	1	Each
450E8024	36" RCP to CMP Transition, Furnish	3	Each
450E8025	36" Pipe Transition, Install	3	Each
450E8034	48" RCP to CMP Transition, Furnish	2	Each
450E8035	48" Pipe Transition, Install	2	Each
462E0100	Class M6 Concrete	154.9	CuYd
480E0100	Reinforcing Steel	28,274	Lb

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SECTION B ESTIMATE OF QUANTITIES, CONT.

FOR BIDDING PURPOSES ONLY

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
541E0010	Treated Timber	60	BdFt
600E0300	Type III Field Laboratory	1	Each
610E1000	Reset Cattle Guard	2	Each
620E0020	Type 2 Right-of-Way Fence	41,368	Ft
620E0040	Type 4 Right-of-Way Fence	1,337	Ft
620E0120	Type 2s Right-of-Way Fence	1,599	Ft
620E0220	Modified Type 2 Right-of-Way Fence	2,399	Ft
620E0510	Type 1 Temporary Fence	12,309	Ft
620E1020	2 Post Panel	228	Each
620E1030	3 Post Panel	63	Each
620E2100	Reset Gate	7	Each
620E4100	Reset Fence	1,207	Ft
621E0040	4' Chain Link Fence with Top Rail	88	Ft
621E0410	Pedestrian Swing Gate	1	Each
630E0513	Type 1C MGS	6,937.5	Ft
630E2017	MGS MASH Flared End Terminal	19	Each
630E2018	MGS MASH Tangent End Terminal	3	Each
650E0060	Type B66 Concrete Curb and Gutter	13,809	Ft
650E1060	Type F66 Concrete Curb and Gutter	5,600	Ft
650E2000	Concrete Barrier Curb and Gutter	20	Ft
650E4660	Type P6 Concrete Gutter	691	Ft
651E0040	4" Concrete Sidewalk	120	SqFt
651E7000	Type 1 Detectable Warnings	10	SqFt
670E1200	Type B Frame and Grate Assembly	117	Each
670E2200	Type C Frame and Grate	4	Each
670E5342	4' x 6' Precast Concrete Type S Drop Inlet Lid	3	Each
670E5400	Precast Drop Inlet Collar	114	Each
671E6030	Type S Manhole Frame and Lid	3	Each
700E0110	Class A Riprap	776.2	Ton
700E0210	Class B Riprap	432.0	Ton
700E0310	Class C Riprap	137.8	Ton
720E1010	PVC Coated Bank and Channel Protection Gabion	36.0	CuYd
831E0110	Type B Drainage Fabric	2,393	SqYd
900E0010	Refurbish Single Mailbox	48	Each
900E0012	Refurbish Double Mailbox	19	Each
900E0015	Multiple Mailbox Support	6	Each
900E1080	Orange Plastic Safety Fence	273	Ft
900E5147	Articulated Concrete Mattress	21.3	SqYd

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 shallow 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.

A copy of the soils profile is available for review at the Rapid City Area Office, the Local Government Assistance Office in the SDDOT Central Office in Pierre as well as by emailing the SDDOT Bid Letting Office at DOTBids@state.sd.us. The soils profile was created in 2009 and may not be completely accurate due to changes in alignment since that time.

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. The lab may be required to be moved up to two times during construction at the direction of the Project Engineer. These items will be incidental to the contract unit price per each for "Type III Field Laboratory".

TRUCK ROUTE

Loaded trucks will be allowed to enter the project during the 2020 construction season from either direction (East from Sheridan Lake Road and West from Highway 385) provided applicable haul road agreements are in place. For the remainder of the project, loaded trucks will enter the project from Highway 385.



CLASSIFICATION OF EXCAVATION

Rock will be encountered within the project limits. All materials except those classified as Muck Excavation encountered during the construction of this project, regardless of their nature or the manner in which they are excavated, will be considered Unclassified/Rock Excavation.

Prospective bidders are encouraged to review the Soils and Geology Reports completed by the SDDOT Geotechnical Engineering Activity as well as observe the project conditions in the field. The Soils and Geology Reports are available at the Rapid City Area Office.

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 AND DISPOSAL OF TIMBER

A. U.S. Forest Service Land

The merchantable timber on Forest Service land will be removed by Pennington County by June 1, 2020. The Contractor will be responsible for the removal of any non-merchantable timber, slash and debris remaining from Pennington County's efforts.

Merchantable timber will be defined as any species of tree with an inside, small end diameter of 8 inches or greater and length greater than 8 feet.

Slash and non-merchantable timber will be disposed of by chipping, burning, or burying. All residue from chipping or burning will be buried. Burial pits will be at locations approved by the District Ranger. The Contractor will follow the prescribed burning provisions of the Fire Plan in his/her preparation for and conduction of all burning operations. The location of slash piles and all other aspects of slash disposal by burning must be approved in advance by the District Ranger.

Stumps from right-of-way clearing will be buried at locations approved by the District Ranger.

B. Landowner Property

This project is within the range of suitable habitat for the Northern Long-Eared Bat (NLEB). Tree removal should not occur during the NLEB pup season which is between June 1 and July 31.

Merchantable timber will be defined as any species of tree with an inside bark diameter of 8 inches or greater and length greater than 8 feet. All merchantable timber will be will become the property of the Contractor.

Slash and non-merchantable timber will be disposed of by chipping, burning, or burying. All residue from chipping or burning will be buried. Burial pits will be at locations approved by the Engineer. The Contractor will follow the prescribed burning provisions of the Fire Plan in his/her preparation for and conduction of all burning operations. Location of slash piles and all other aspects of slash disposal by burning must be approved in advance by the Engineer.

Stumps from right-of-way clearing may be buried at locations approved by the Engineer.

TRAFFIC DIVERSION

The traffic diversion is located at Sta. 4+25 The traffic diversion will be constructed according to Section 4.5 A. of the Specifications. Installation and removal of the traffic diversion will meet all requirements as set forth in the South Dakota Surface Water Quality Standards.

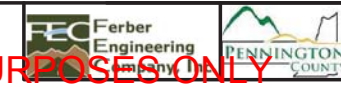
The traffic diversion located at Station 4+25 will be constructed according to the geometric layouts shown in the plans with the temporary drainage structure(s) provided in the following table. The temporary structure sizes are designed to pass the design flood frequency flows (10 year) without overtopping the traffic diversion grade, to minimize potential upstream flooding. The structure(s) will be placed at the flowline elevation and location as stated in the "Table of Temporary Drainage Structures in Traffic Diversions". If the Contractor proposes to use a different size drainage structure and/or a different geometric layout for the temporary diversion, the proposal must be submitted to the Engineer during the project preconstruction meeting. This information will be forwarded to the DOT Hydraulics Office for review. Construction of the traffic diversion(s) will not be allowed until approval of the proposal is obtained from the Hydraulics Office. The temporary drainage structure has been designed to pass the 10 year storm of approximately 670 cfs. In the event that a storm in excess of the 10 year event is encountered during construction the contractor will shut down the road temporarily until flows subside.

TABLE OF TEMPORARY DRAINAGE STRUCTURES IN TRAFFIC DIVERSIONS

Traffic Diversion Location	Design Flood Frequency	* Flowline Elevation	Temporary Structure Option
4+25	10 year	4679.4	3 - 54" CMP

* The flowline elevation is at the centerline of the traffic diversion.

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Costs to provide temporary drainage structures will be incidental to the contract lump sum price for "Maintenance of Traffic Diversion(s)".

Traffic diversions in waterways will be constructed such that any material placed below the ordinary high water elevation estimated as elevation 4691 at Sta. 4+25 will conform to the requirements of class C riprap. The quantity of riprap used in the traffic diversion is included in the quantity for "Class C Riprap." The traffic diversions will be built in close conformity to the plan gradeline. Unless otherwise shown in the plans, the traffic diversions will be removed such that the original ground surface is restored and the hydraulic capacity of the waterway is maintained. The removal will be done in such a manner that there is minimal disturbance to the riverbed.

The removed traffic diversion embankment will be used in the mainline embankment unless otherwise approved by the Engineer.

Traffic Diversion Excavation as shown on the plans profile sheets is the excavation required to construct the traffic diversion portion that is located inside the mainline cross section work limits. The Traffic Diversion Excavation quantity is included in the mainline excavation quantity in the Table of Excavation Quantities by Balances and in the Table of Unclassified/Rock Excavation.

Traffic Diversion Borrow, as shown on the plans profile sheets, is obtained from the mainline excavation from outside of the traffic diversion cross section work limits. The Traffic Diversion Borrow quantity is included in the mainline excavation quantity in the Table of Excavation Quantities by Balances and in the Table of Unclassified/Rock Excavation.

Added Traffic Diversion Excavation as shown on the plans profile sheets is the excavation required to construct the traffic diversion portion that is located outside the mainline cross section work limits. The Added Traffic Diversion Excavation quantity is added to the Unclassified/Rock Excavation quantity in the Table of Unclassified/Rock Excavation.

OBLITERATING OLD ROAD

The Contractor will obliterate the existing roadway at the locations listed in the Table of Obliterating Old Road. The Contractor will obliterate the existing roadway in accordance with Section 240 of the Specifications when the existing roadway is not being removed with the template section.

The earthwork necessary for obliterating the existing road will be accomplished to such an extent that placing topsoil and seeding can be done in a satisfactory manner. Quantities of topsoil, fertilizing, mulching, and seeding for the obliterated sections of the old road are included in Section D .



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TABLE OF OBLITERATING OLD ROAD

Station	to	Station	L/R	Length (Sta)
1+24		2+15	R	1.4
5+88		12+12	R	8.4
8+54		11+86	R	2.9
47+01		49+02	L	2.9
53+18		55+41	L	5.6
59+38		68+37	L	10.6
70+34		72+13	R	1.7
165+99		168+06	R	2.6
366+38		368+31	R	1.9
422+75		425+71	L	4.2
425+15		424+95	L/R	1.4
426+05		434+12	L	8.1
434+69		437+76	L	2.9
Total				54.6

SHRINKAGE FACTORS:

Embankment Station to Station	
0+00 104+00	+16%
104+00 173+00	+25%
260+00 360+00	+18%
360+00 518+00	+31%
518+00 596+00	+26%

TABLE OF EXCAVATION QUANTITIES BY BALANCES

Station	to	Station	Excavation (CuYd)	*Undercut (CuYd)	*Muck Exc. (CuYd)	Total Excavation (CuYd)	**Waste (CuYd)	**Haul (CuYdSta)
1+00		54+00	180244	2791		183035		1111285
North Beach			811			811		
Forest Service Access			3019			3019		
54+00		172+00	140592	9041		149633	16815	5144058
258+00		421+00	204466	11839	384	216689		7642777
Driveway 270+88			986			986		
Driveway 358+97			1115			1115		
421+00		491+00	21586	5002		26588		658338
Driveway 425+90			402			402		
Removal of Old Roadbed			37271			37271		
501+00		594+71	46428	12445		58873		682187
Totals			636920	41118	384	678422		15238645

* The quantities for these items are in the Estimate of Quantities under their respective bid items

** The quantities for these items are for information only.

PROCEDURES FOR DETERMINING UNCLASSIFIED/ROCK EXCAVATION QUANTITY

When plan quantities are used for payment, the Unclassified/Rock Excavation quantity will be used for final payment.

The following paragraphs are general earthwork information and information in regards to computing the Unclassified/Rock Excavation quantity when final cross sections are taken in the field:

The Unstable Material Excavation quantity is included in the Excavation quantity listed in the Table of Unclassified/Rock Excavation. When finaling a project, the Unstable Material Excavation quantity will be added to the Excavation quantity to compute the Unclassified/Rock Excavation quantity.

The Topsoil quantity in the Table of Unclassified/Rock Excavation is an estimate. When finaling a project, the total quantity of field measured Topsoil will be used in place of the estimated Topsoil quantity. The quantity of Topsoil from the cuts will be paid for twice as Unclassified/Rock Excavation, as it will be in both the Excavation and Topsoil quantities. This will be full compensation for Excavation, which includes necessary undercutting to provide space for placement of topsoil.

The Excavation quantities from individual balances and the Table of Unclassified/Rock Excavation have been not reduced by the volume of in place surfacing that will be removed and/or salvaged.



HAUL

FOR BIDDING PURPOSES ONLY

Included in the Table of Excavation Quantities by Balances is Haul. It is not a pay item and is for informational purposes only. The mass haul diagram is available as part of the bid package for use in figuring this haul.

Haul: Estimated quantity (CuYdSta) for moving unclassified excavation material to the locations where it is needed throughout the earthwork balance.

For Purpose of Extra Haul Computations:

Average Haul = Haul /Unclassified Excavation = 15238645/755525 = 20.2Sta.

UNDERCUTTING

In all cut sections the earthen subgrade will be undercut 1.0 foot below the earthen subgrade surface. The undercut material or other suitable material, as directed by the Engineer, will then be replaced and compacted to the density specified for the section being constructed.

Shallow embankment sections, fills less than 1.0 foot in height measured at the finished subgrade shoulders, will be undercut to ensure a minimum 1.0 foot height of earth embankment for the entire width of roadbed

An exception to the undercut requirements will be made in sections that encounter in place rock. Cut sections made through in place rock will be excavated to the top of the subgrade surface only. Shallow embankment sections (as described above) placed over in place rock with less than 1.0 foot of soil cover will be excavated to the surface of the rock prior to placing any fill.

The plan shown quantity will be the basis of payment. However, if there are additional areas of undercut other than what is shown in the plans, the Engineer will direct removal of these areas and the additional areas will be measured according to the Engineer.

TABLE OF UNCLASSIFIED/ROCK EXCAVATION

Excavation	636920
Undercut	41118
Topsoil	14002
Exc. for Deep Pipe Removal	24352
Added Traffic Diversion Excavation	364
Unstable Material Excavation	7290
Salvaged Asphalt Mix and Granular Base Material (from cut sections)	19518
Salvaged Asphalt Mix and Granular Base Material (from fill sections)	9818
Salvaged Asphalt Mix and Granular Base Material (from off-alignment roadways or from obliterated roads)	2143
Total	755525

Total 755525

TABLE OF UNDERCUTTING

Station	to	Station	Quantity (CuYd)
7+00		15+00	901
19+00		40+00	1297
44+00		50+00	593
55+00		75+00	1346
83+00		88+00	196
98+00		110+00	740
111+00		141+00	3368
142+00		172+00	3391
258+00		288+00	2629
288+00		318+00	3599
318+00		348+00	1626
348+00		376+00	1361
376+00		405+00	2189
408+00		415+00	461
424+00		430+00	389
435+00		453+00	1544
460+00		490+00	3004
490+00		520+00	3092
520+00		550+00	3179
550+00		580+00	4138
580+00		594+71	2076
Total			41118

UNSTABLE MATERIAL EXCAVATION

The areas of unstable material excavation are drawn on the cross sections with a normal depth of 2 feet. The estimated quantity of 7290 cubic yards of unstable material excavation will be paid for at the contract unit price per cubic yard for "Unclassified/Rock Excavation".

All areas designated as Unstable will be excavated. The unstable material excavated on this project will be placed outside the subgrade shoulder in fill sections or stockpiled and used as topsoil.

Field measurement of unstable material excavation will not be made. However, if there are additional areas of unstable material excavation other than what is shown in the plans, the Engineer will direct removal of these areas and the additional areas will be measured according to the Engineer.

TABLE OF UNSTABLE MATERIAL EXCAVATION

Station	to	Station	L/R	Depth (Ft)	Quantity (CuYd)
3+50		5+50	R	2	897
5+50		6+50	L/R	2	319
51+50		52+50	L/R	2	1600
110+50		112+50	R	2	333
374+00		378+00	R	2	1788
389+50		391+50	R	2	687
390+50		392+50	L	2	433
531+75		536+00	L	2	426
540+50		541+50	L	2	107
577+50		582+50	L	2	700
Total					7290

MUCK EXCAVATION

The areas of muck excavation are drawn on the cross sections with a normal depth of 3 feet. The estimated quantity of 384 cubic yards of muck excavation will be paid for at the contract unit price per cubic yard for "Muck Excavation".

Muck excavation consists of the removal of highly organic and/or highly saturated material from the designated areas shown on the cross sections. Highly organic muck material will not be used in the embankment but may be used as topsoil. Non-organic muck material may be used as embankment outside of the fill subgrade shoulder if it is properly handled and dried prior to placement in the embankment.

Field measurement of muck excavation will not be made unless the Engineer orders additional excavation, or when the Engineer determines, in accordance with Section 120.3 A.1 of the Specifications, that the classification of excavation be changed.

If the areas designated as muck excavation can be removed with similar equipment and procedures as used for unclassified excavation, the material will be measured and paid for as "Unclassified/Rock Excavation".

TABLE OF MUCK EXCAVATION

Station	to	Station	L/R	Depth (Ft)	Quantity (CuYd)
259+50		260+50	R	3	384
Total					384

FOR BIDDING PURPOSES ONLY

STEEP SLOPE EMBANKMENT CONSTRUCTION

All embankments with slopes steeper than 3:1 shall be constructed of well graded rock fill material consisting of at least 50% 8-inch minus rock and an adequate amount of soil to provide compaction. Large boulders, 3 feet in diameter and larger, shall be placed outside of the finished subgrade shoulder and covered with a minimum of 2 feet of embankment. If embankment materials fail to meet these criteria and/or consist of predominantly soil, additional rock will be added to the embankment to achieve the desired consistency or another borrow source shall be utilized that meets the criteria for steep slope embankment construction.

SALVAGE AND STOCKPILE ASPHALT MIX AND GRANULAR BASE MATERIAL

An estimated 59,496 tons (31,479 cubic yards) of asphalt mix and granular base material will be salvaged from the entire length of the existing highway and stockpiled at a site furnished by the Contractor and satisfactory to the Engineer.

The quantity of salvage asphalt mix and granular base material may vary from the plans. No adjustment will be made to the contract unit price for variations of the quantity of "Salvage and Stockpile Asphalt Mix and Granular Base Material."

It is estimated that there are 58 cubic yards of salvageable material per station. This rate was used to compute the unclassified excavation quantities.

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SALVAGE AND STOCKPILE ASPHALT MIX AND GRANULAR BASE MATERIAL, CONT.

The rate of salvageable material is based on a 23.4 foot width and an 8 inch depth.

The salvage and stockpile quantity of asphalt mix and granular base will be computed by multiplying the in place cubic yards by 1.26 to convert to stockpile cubic yards. To convert in place cubic yards to tons, multiply by 1.89.

The following table is furnished for information only.

MRM	Distance from Centerline (Feet)		Thickness of Asphalt Mix Material (Inches)	Thickness of Granular Material (Inches)
	Lt.	Rt.		
0.3	6		5.2	3.6
1.4		4.3	4.2	3
2.3	3		6	4.2
3.3		7	6.4	4.2
5.3	6.7		4.3	3
6.2		6	4.2	3
7.2	9		4.2	3
8.3		9.5	5.3	4.2
9.1	5.5		4.8	4.8
9.9		6.5	6.6	3.6
10.7	7		5.4	3.6
Approx. 12		6	8.4	3.6
Average			5.4	3.6

EXCAVATION FOR DEEP PIPE CULVERT REMOVAL

Included in the quantity of "Unclassified/Rock Excavation" are 24352 cubic yards of excavation for removal of deep pipes. Deep pipes are existing mainline pipes at depths of 10 feet or greater (measured from the flow line to the lowest elevation of either the existing ground line, undercut line, or bottom of removed or salvaged surfacing).

All work necessary to excavate and backfill the deep pipes including labor, equipment, and incidentals will be incidental to the contract unit price per cubic yard for "Unclassified/Rock Excavation". Payment for deep pipe excavation will be based only on plans quantity and measurement of these excavation quantities during construction will not be performed.

EXCAVATION FOR DEEP PIPE REMOVAL, CONT.

The excavation quantities for deep pipes are not included with the earthwork balance quantities on the plans profile sheets. The quantities computed for excavation of the deep pipes are based on the limits shown in the drawing below. The drawing shows a box culvert for illustration purposes only; the limits are similar for a pipe.

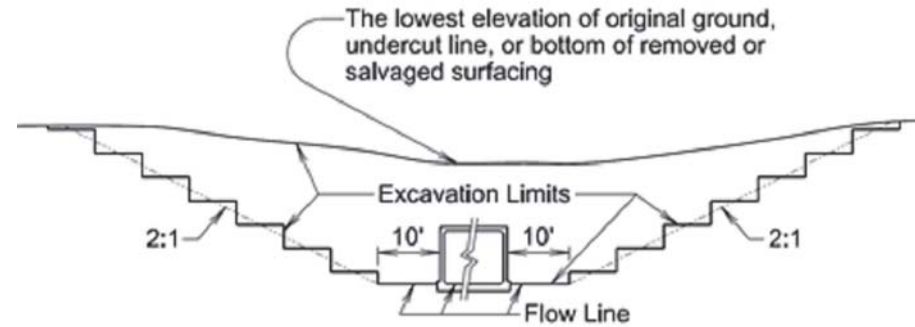


TABLE OF EXCAVATION FOR DEEP PIPE REMOVAL

Station	Type	Quantity (CuYd)
4+00	Pipe	822
271+88.27	Pipe	2795
286+26.22	Pipe	9039
352+57.26	Pipe	1603
404+36.00	Pipe	2019
407+39.92	Pipe	6229
415+54.65	Pipe	1845
Total		24352

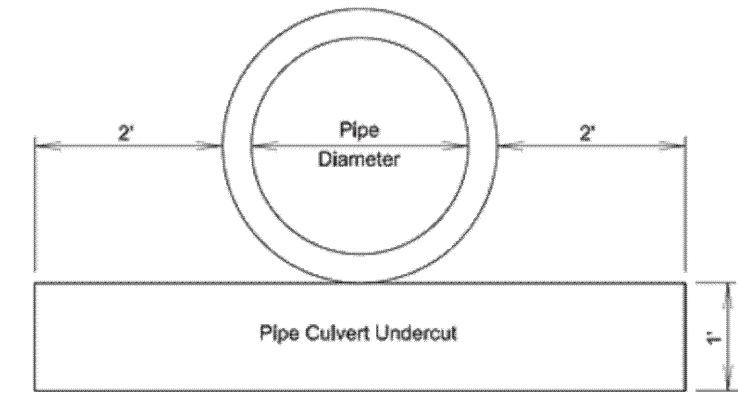
PIPE CULVERT UNDERCUT

Pipe culvert undercut may be required for this project. The Engineer will determine which pipe will be undercut in accordance with Section 421 of the Specifications.

If pipe culvert undercut is required, the table below contains the rate for one-foot depth of pipe culvert undercut per foot of pipe length. When calculating pipe culvert undercut, the length of pipe ends should be included in the overall pipe length.

Storm sewer and approach pipes do not require undercutting unless specified otherwise in these plans.

FOR BIDDING PURPOSES ONLY



Pipe Diameter (In)	Round Pipe Undercut Rate for 1' Depth (CuYd/Ft)	Arch Pipe Undercut Rate for 1' Depth (CuYd/Ft)
24	0.2407	0.2577
30	0.2623	0.2847
36	0.2840	0.3110
42	0.3056	0.3337
48	0.3272	0.3596
54	0.3488	0.3827
60	0.3704	0.4105
66	0.3920	--
72	0.4136	0.4630
78	0.4352	--
84	0.4568	0.5123
90	0.4784	--

BLASTING OPERATIONS

The Contractor will exercise utmost care so as not to endanger life or property while using explosives.

Before any drilling operations in preparation for blasting are started, the Contractor will furnish the Engineer a detailed plan of operations showing the method proposed for the prevention of damage. In order to ensure adequate protection, the plan may be modified to meet the conditions that may develop. The Contractor will also consider the location of adjacent structures in preparation of this plan.

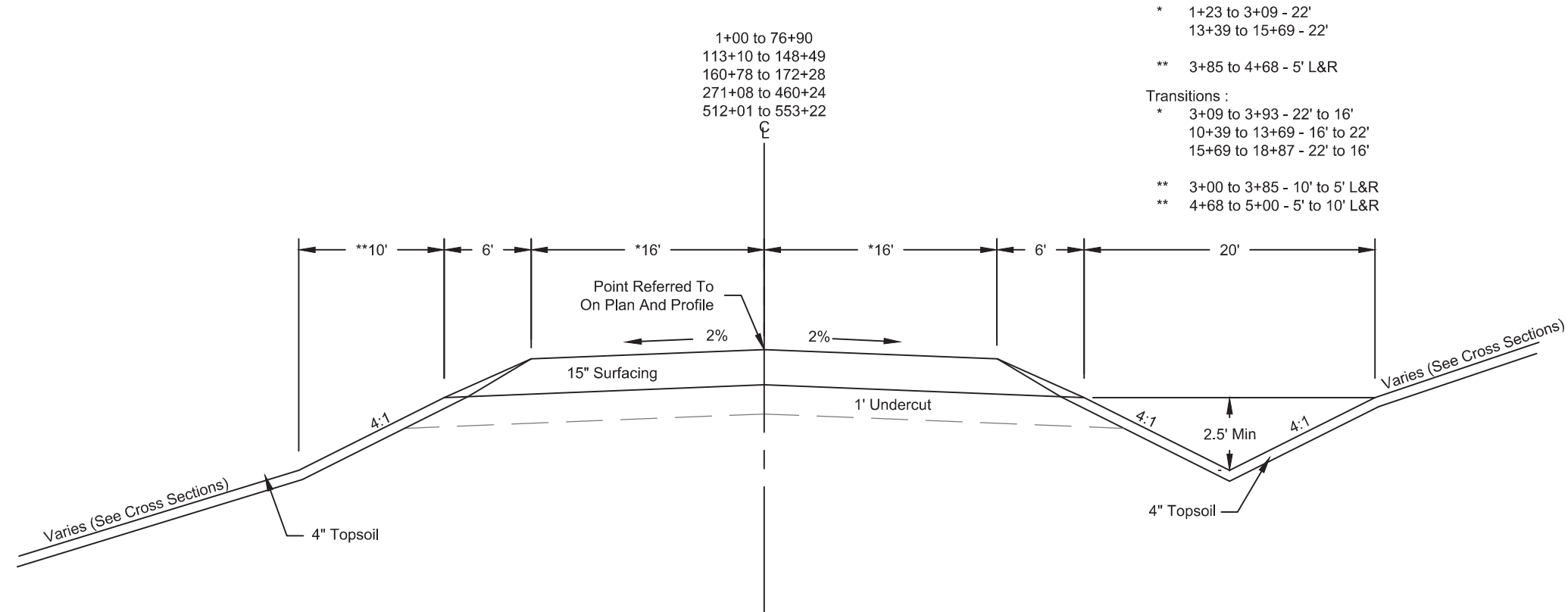


TYPICAL GRADING SECTIONS FOR BIDDING PURPOSES ONLY

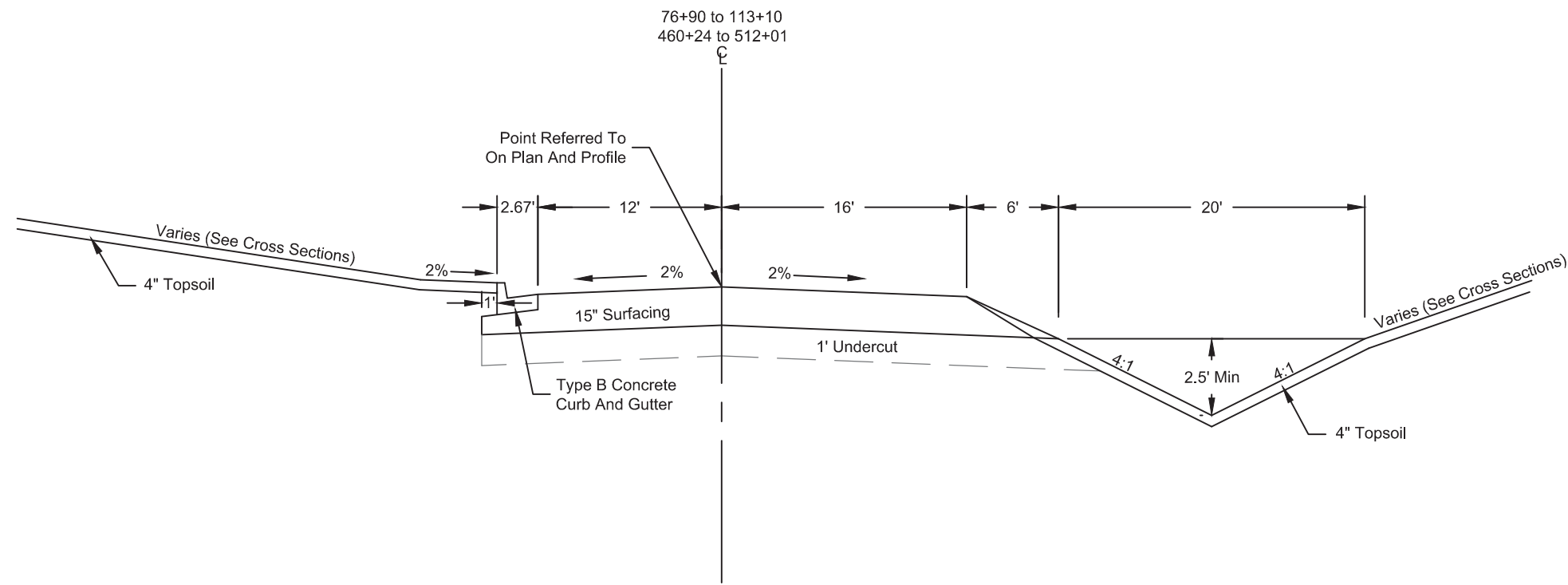


PROJECT	SHEET NO.	TOTAL SHEETS
SHERIDAN LAKE ROAD RECONSTRUCTION P 6480(4) PCN 5777	B33	B227

PLOTTING DATE: 1/9/20



- * 1+23 to 3+09 - 22'
- 13+39 to 15+69 - 22'
- ** 3+85 to 4+68 - 5' L&R
- Transitions :
- * 3+09 to 3+93 - 22' to 16'
- 10+39 to 13+69 - 16' to 22'
- 15+69 to 18+87 - 22' to 16'
- ** 3+00 to 3+85 - 10' to 5' L&R
- ** 4+68 to 5+00 - 5' to 10' L&R



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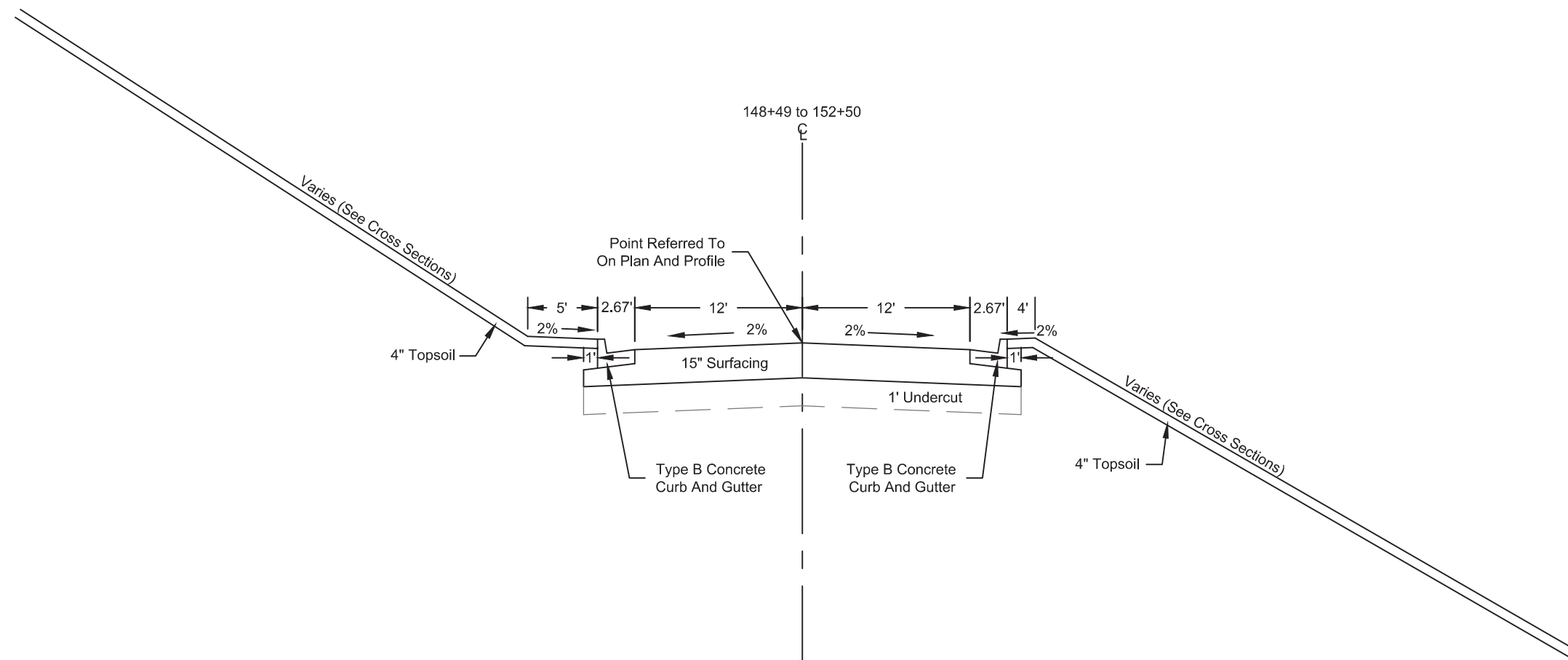
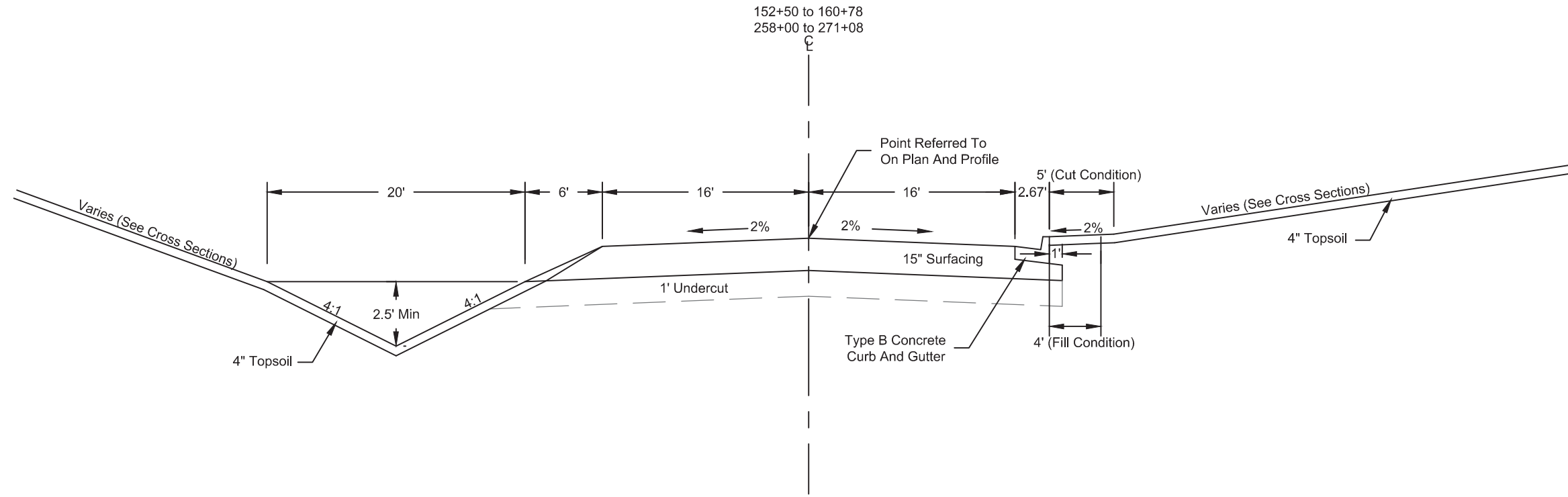


TYPICAL GRADING SECTIONS FOR BIDDING PURPOSES ONLY



PROJECT	SHEET NO.	TOTAL SHEETS
SHERIDAN LAKE ROAD RECONSTRUCTION P 6480(4) PCN 5777	B34	B227

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TYPICAL GRADING SECTIONS FOR BIDDING PURPOSES ONLY



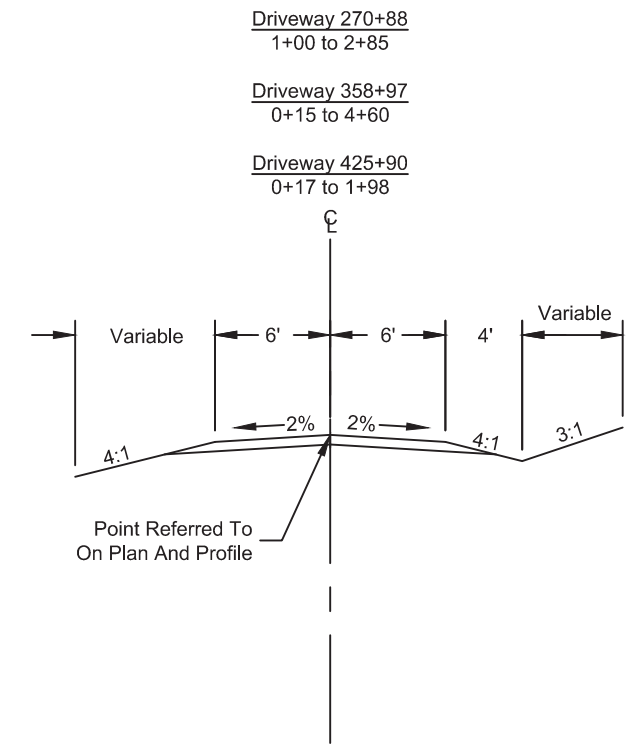
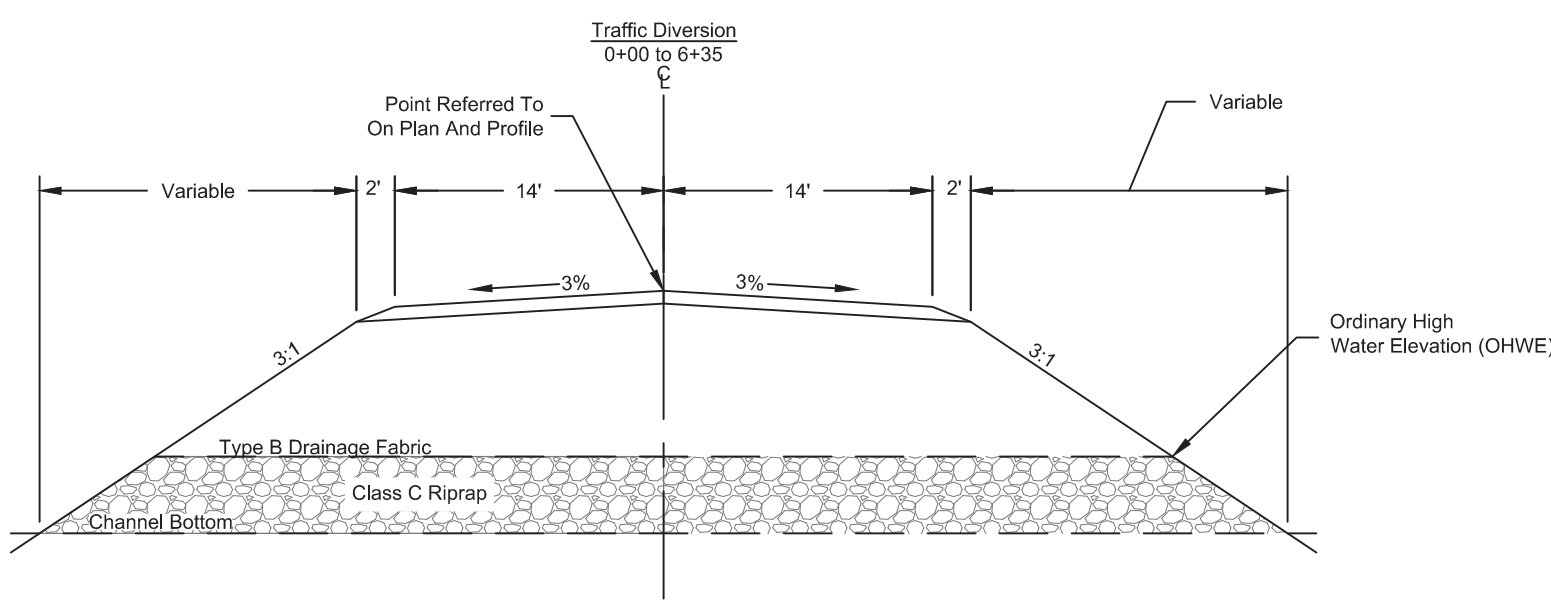
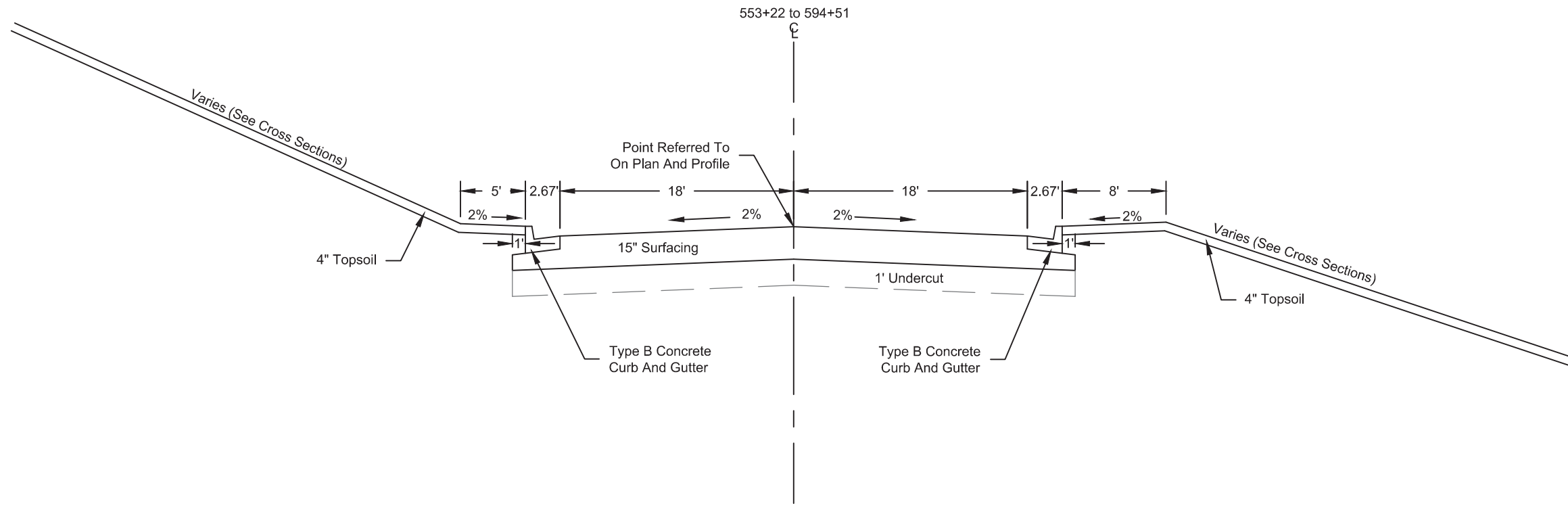
Civil Engineering
Geospatial Solutions
Water Resources
Sustainability



PROJECT
SHERIDAN LAKE ROAD RECONSTRUCTION
P 6480(4) PCN 5777

SHEET NO. B35
TOTAL SHEETS B227

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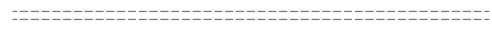




















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PLOTTING DATE: 1/9/20









EXISTING & PROPOSED SYMBOLOGY AND LEGEND

EXISTING LEGEND

PROPOSED LEGEND

	Existing Curb and Gutter
	Sanitary Sewer Line
	Storm Sewer Line
	Telephone Line
	Overhead Telephone Line
	Overhead Lines (Power, Cable, Etc)
	Power Line
	Gas Line
	Fiberoptic Line
	Cable TV Line
	Barbed Wire Fence
	Chainlink Fence
	Wood Fence
	Woven Wire Fence
	Building Line
	Property Line
	Section Line
	Quarter Line
	Cut and Fill Limits
	Easement Line
	Spring Creek Line

	Deciduous Tree
	Coniferous Tree
	Deciduous Hedge/Tree Line
	Coniferous Hedge/Tree Line
	Deciduous Bush
	Coniferous Bush
	Stump
	2 Pole Sign
	1 Pole Sign
	Power Pole
	Guy Wire Anchor
	Type "S" Inlet
	Type "B" Inlet
	Mailbox
	Post

	Proposed R.O.W.
	Storm Sewer Line
	Drainage Arrow
	Type "S" Inlet
	Type "B" Inlet
	Junction Box
	Temporary Construction Easement
	Proposed Guardrail

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3+93.5 - 62.6' LT to
4+19.5 - 70.9' RT
20' X 12' Reinforced
Concrete Box Culvert

7+34.2 - 32.1' RT to
7+42.6 - 31.3' LT
Install 24" - 52' RCP
With Sloped Ends

**Traffic Diversion
Alignment**

3+27.1 - 50.8' RT to
2+85.8 - 30.0' LT
Install 54" - 92' CMP

3+34.6 - 47.0' RT to
2+92.1 - 33.0' LT
Install 54" - 90' CMP

3+42.0 - 43.0' RT to
2+98.3 - 36.1' LT
Install 54" - 92' CMP

FOR BIDDING PURPOSES ONLY

SOUTHEAST 1/4
LESS PORTION OF M.S. 1250
SECTION 2, T1S, R5E, BHM
USA PUBLIC DOMAIN

PARCEL 1

7+20 LT
Remove and Reset
Tubular Frame Gate

3+43-105' LT
Begin Type 2 Fence

20' X 12'
RCBC

6+95.2-75.0'
6+98.4-94.0'

7+29.5-99.6'
7+39.4-75.0'

7+71.5-89.7'

50 25 0 50

Type 2 Fence

BEGIN P 6480(4)
Sheridan Lake Road
1+22.88

1+24 RT to 2+15 RT
Obliterate Old Road

Traffic Diversion
PI 3+86.33
N 617597.1952
E 1138779.8340
Del 72°50'09"
Dc 16°17'09"
T 260.42'
L 448.74'
R 353.00'

Traffic Diversion
PI 7+73.62
N 617331.8095
E 1139154.8226
Del 34°30'05"
Dc 16°17'09"
T 109.61'
L 212.56'
R 353.00'

7+33 RT
Class A Riprap (11.0 Ton)
Type B Drainage Fabric (24.6 SqYd)

5+85 RT to 11+98 RT
Obliterate Old Road

8+54 RT to 11+86 RT
Obliterate Old Road
(N. Beach Rd.)

9+75.4-590' RT
Do Not Disturb
Rock Headwall

Sheridan Lake Road
PI 8+15.31
N 617850.0248
E 1138971.5249
Del 19°43'29"
Dc 2°51'54"
T 347.70'
L 688.52'
R 2000.00'

NORTHEAST 1/4
LESS ROW
SECTION 11, T1S, R5E, BHM
USA PUBLIC DOMAIN

PARCEL A1

3+90-48' LT to 4+03 - 11' RT
Take Out 84" - 60' RCP
(Incidental Work, Grading)

4+02-54' LT to 4+14 - 17' RT
Take Out 60" - 74' RCP
(Incidental Work, Grading)

9+67-629' RT to 9+74 - 593' RT
Take Out 12" - 38' CMP
(Incidental Work, Grading)

Parcel A1
1+99.2 to 2+47.8 R
Temporary Easement for Cut
and/or Fill containing 0.02 Acres
(1001 sq ft) more or less

Parcel 1
1+99.1 to 18+55.0 R
Temporary Easement for Cut
and/or Fill containing 5.10 Acres
(222135 sq ft) more or less

Parcel 1
6+95.2 to 7+39.4 L
Temporary Easement for Cut
and/or Fill containing 0.02 Acres
(863 sq ft) more or less

Parcel 1
7+71.5 to 15+12.1 L
Temporary Easement for Cut
and/or Fill containing 1.22 Acres
(53128 sq ft) more or less



ROAD OBLITERATION LAYOUT

FOR BIDDING PURPOSES ONLY



PROJECT
SHERIDAN LAKE ROAD RECONSTRUCTION
P 6480(4) PCN 5777

SHEET NO. B45
TOTAL SHEETS B227

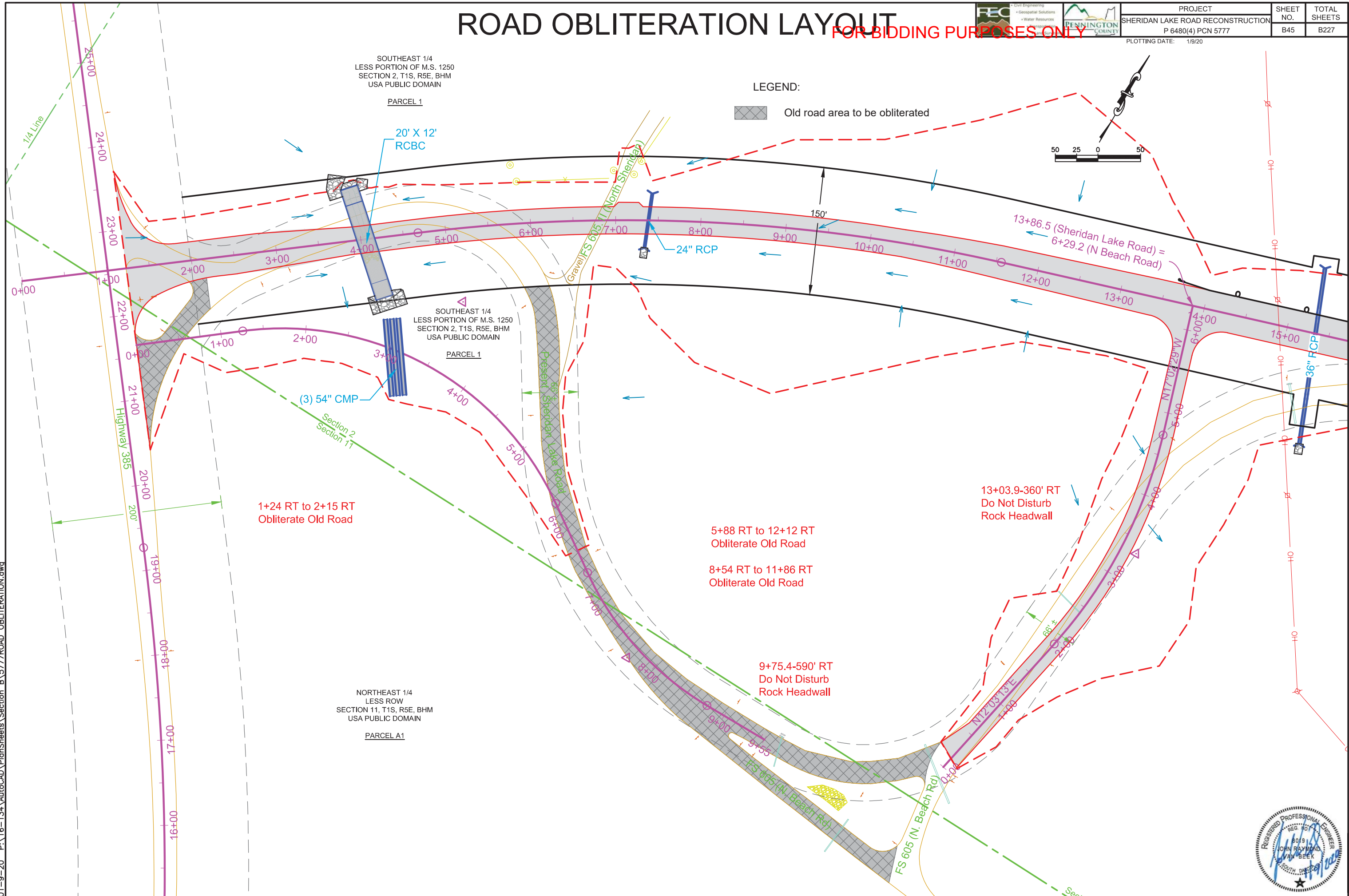
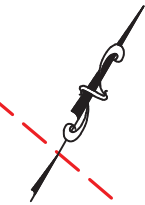
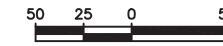
PLOTTING DATE: 1/9/20

SOUTHEAST 1/4
LESS PORTION OF M.S. 1250
SECTION 2, T1S, R5E, BHM
USA PUBLIC DOMAIN

PARCEL 1

LEGEND:

Old road area to be obliterated



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ROAD OBLITERATION LAYOUT

FOR BIDDING PURPOSES ONLY

PROJECT SHERIDAN LAKE ROAD RECONSTRUCTION P 6480(4) PCN 5777	SHEET NO.	TOTAL SHEETS
	B54	B227

PLOTTING DATE: 1/9/20

LEGEND:

 Old road area to be obliterated

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