

JACS E BIKES
PRELIMINARY PLANS
JUSTIN SKILLINGS
BAXTER, MINNESOTA



I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Christopher L. Sonmor
CHRISTOPHER L. SONMOR
44599 LIC. NO.
07/06/2026 DATE

REVISIONS

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JACS E BIKES
TITLE SHEET
BAXTER, MINNESOTA

SHEET

C0

SHEET INDEX

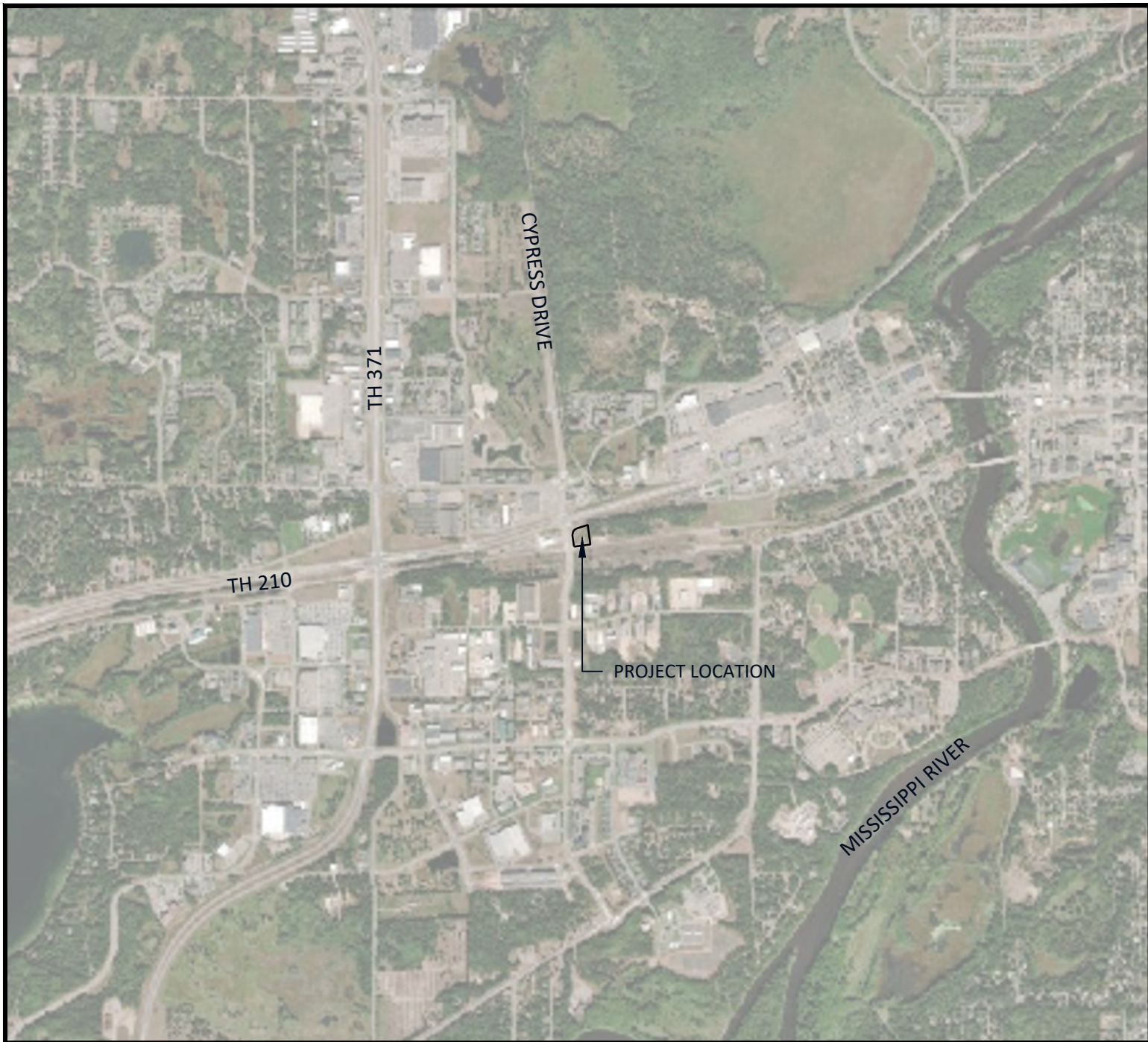
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PROJECT CONTACTS

OWNER
SKILLINGS PROPERTIES, LLC
JUSTIN SKILLINGS
2257 COTTAGE WOOD DRIVE SW
NISSWA, MN 56468
justinskillings@gmail.com

ENGINEER
CHRISTOPHER L. SONMOR, PE
SONMOR CONSULTING, LLC
967 GULL MEADOWS LANE
EAST GULL LAKE, MN 56401
chris@sonmorconsulting.com
(952) 270-8394 (M)

LEGEND	
PROPOSED	EXISTING
SANITARY SEWER	SANITARY SEWER
FORCEMAIN (SAN.)	FORCEMAIN (SAN.)
STORM SEWER	STORM SEWER
DRAIN TILE	DRAIN TILE
WATERMAIN	WATERMAIN
UNDERGROUND GAS LINE	UNDERGROUND GAS LINE
UNDERGROUND TELEPHONE	UNDERGROUND TELEPHONE
UNDERGROUND ELECTRIC	UNDERGROUND ELECTRIC
CONCRETE CURB	CONCRETE CURB
EASEMENT LINE	EASEMENT LINE



LOCATION MAP

NOT TO SCALE

GENERAL NOTES

- WORK TO BE COMPLETED IN ACCORDANCE WITH MnDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION (CURRENT EDITION) AND THE CITY OF BAXTER STANDARD SPECIFICATIONS AND STANDARD PLATES.
- THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION & DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."
- TOPOGRAPHIC SURVEY WAS COMPLETED BY KLD.
- CONTRACTOR IS RESPONSIBLE FOR GOPHER STATE ONE CALL PRIOR TO BEGINNING ANY REMOVALS, GRADING OR EXCAVATION.
- CONTRACTOR TO CONTACT OWNER FOR PRIVATE UTILITY LOCATES IF NEEDED.
- ALL RADII ARE 5-FEET UNLESS NOTED.

GRADING NOTES

- ALL EROSION CONTROL DEVICES ARE TO BE INSTALLED PRIOR TO BEGINNING DEMOLITION OR GRADING OPERATIONS.
- ALL SPOT ELEVATIONS ARE TO FINISHED GROUND (BITUMINOUS, CONCRETE, GRAVEL, EOF, ETC.) UNLESS NOTED. SPOT ELEVATIONS ON CURB LINES ARE ARE TO FLOW LINE UNLESS NOTED.
- EXISTING TOPSOIL SHALL BE STRIPPED WITHIN THE PROJECT GRADING LIMITS AND STOCKPILED ON SITE. GRADING OPERATIONS SHALL BE LIMITED TO THE AREAS SHOWN ON THE PLANS. STABILIZE STOCKPILES PER THE SWPPP.
- IF UNSUITABLE SOILS ARE DISCOVERED ON SITE, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER.
- COMPACT SUBGRADES TO RELATIVE COMPACTION IN ACCORDANCE WITH ASTM D698.
- NOTIFY THE OWNER OF EARTHWORK DISCREPANCIES.

UTILITY NOTES

- THE CONTRACTOR IS RESPONSIBLE FOR ANY NECESSARY PERMITS FOR DEWATERING OPERATIONS (IF NECESSARY).
- PROVIDE 10-FEET OF HORIZONTAL SEPARATION AND 18-INCHES OF VERTICAL SEPARATION BETWEEN WATER AND SANITARY SEWER.
- WATER AND SANITARY SEWER SERVICES SHALL BE INSTALLED IN ACCORDANCE WITH THE MINNESOTA DEPARTMENT OF LABOR AND INDUSTRY (MDOLI) REQUIREMENTS.
- INSTALL WATERMAIN SERVICE AT MINIMUM DEPTH OF 8-FEET.
- CONTRACTOR SHALL CONDUCT COORDINATE WATER AND SANITARY SEWER SERVICE CONNECTION WITH THE CITY OF BAXTER FOR INSPECTIONS.
- INSTALL GRAVITY SEWER SERVICE LINES WITH MINIMUM 2.0% GRADE.

EROSION CONTROL NOTES

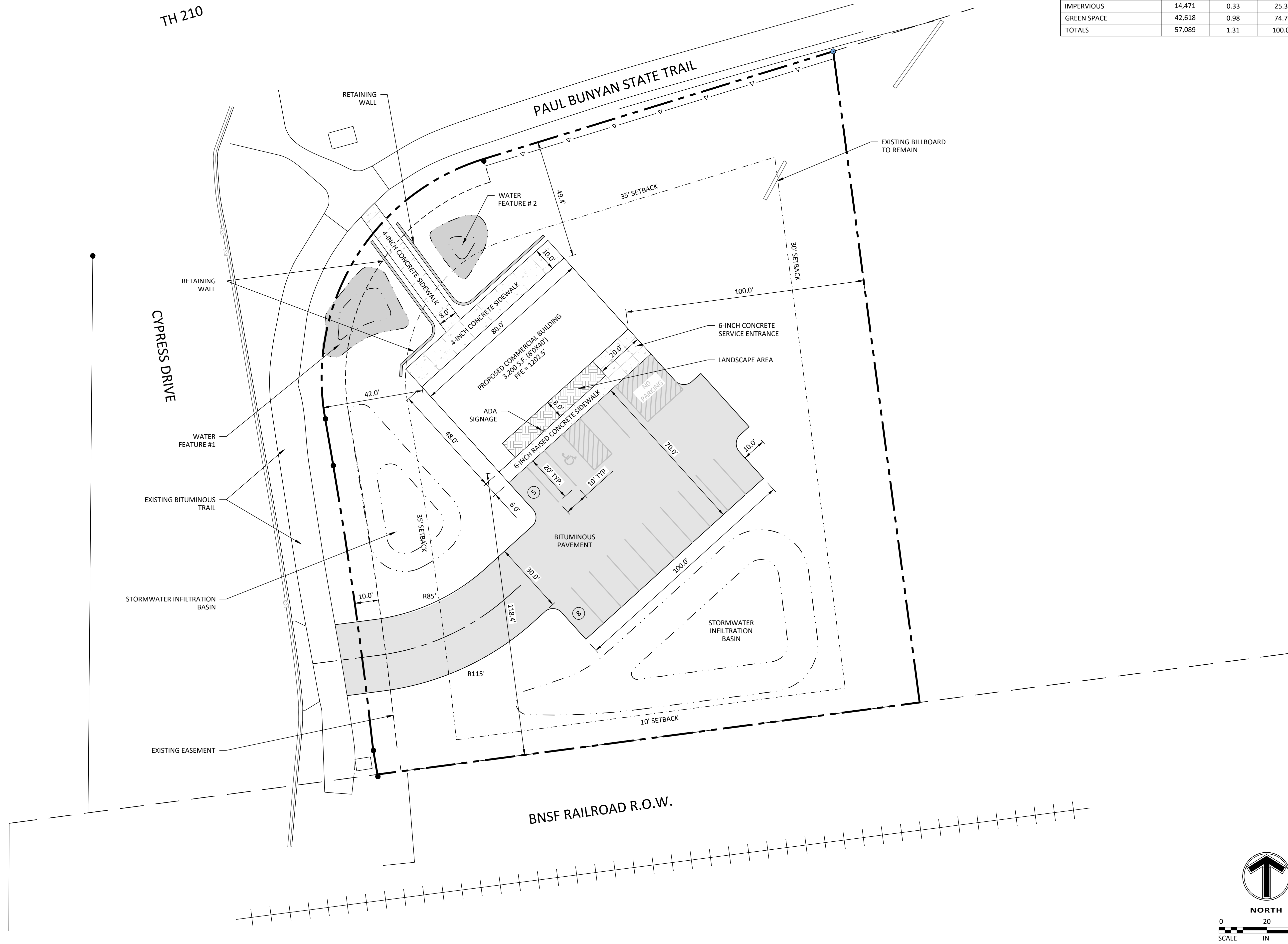
- RESTORE ALL DISTURBED AREAS USING THE FOLLOWING MNDOT PAY ITEMS:
 - TEMPORARY SEEDING (AS NEEDED) - 2575.608 OATS WITH FERTILIZER TYPE 1 (COMMERCIAL) ANALYSIS 10-10-20 AT 100 LBS/AC
 - FINAL SEEDING - 2575.608 RESIDENTIAL TURFGRASS WITH FERTILIZER TYPE (SLOW RELEASE) ANALYSIS 22-5-10 AT 200 LBS/AC
- SEE SWPPP ON SHEET C5 FOR ADDITIONAL NOTES FOR STORMWATER MANAGEMENT & EROSION CONTROL.

GOPHER STATE ONE CALL

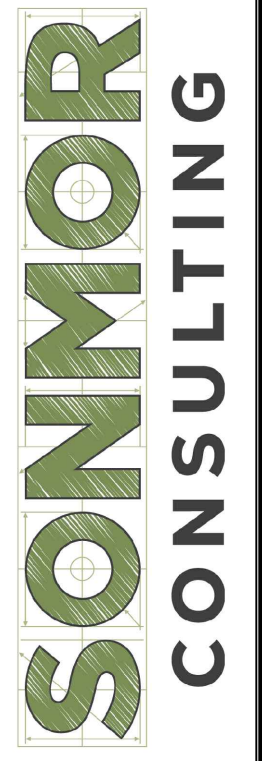
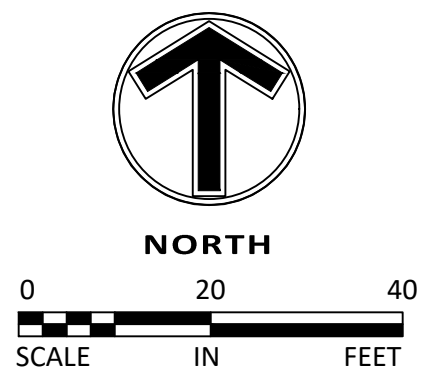
811 | (651) 454-0002 | (800) 252-1166
qa@gopherstateonecall.org

THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING GOPHER STATE ONE CALL FOR UTILITY LOCATES.

THE CONTRACTOR SHALL CONTACT GOPHER STATE ONE CALL IN ADVANCE OF ANY GRADING OR EXCAVATION AS REQUIRED BY STATE STATUTE. THE CONTRACTOR, AT NO COST TO THE OWNER, SHALL BE RESPONSIBLE FOR ANY REQUIRED UTILITY REPAIRS RESULTING FROM THEIR WORK.



PROPOSED LOT IMPERVIOUS COVERAGE			
GROUND COVER	AREA (SF)	AREA (AC)	COV. (%)
IMPERVIOUS	14,471	0.33	25.3
GREEN SPACE	42,618	0.98	74.7
TOTALS	57,089	1.31	100.0



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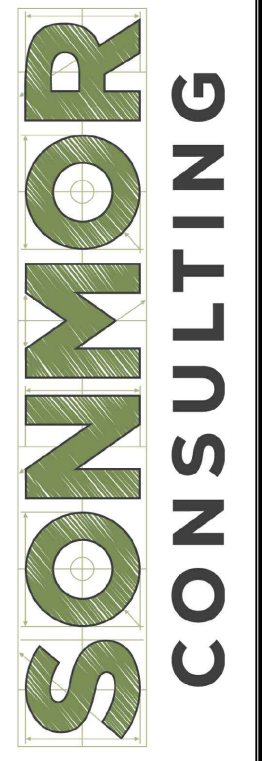
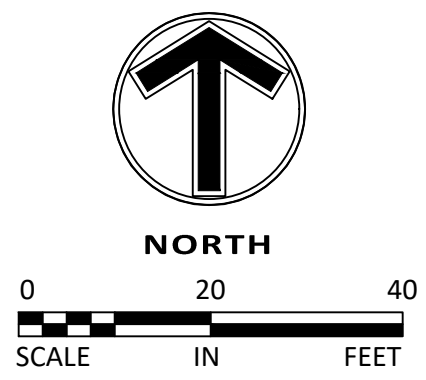
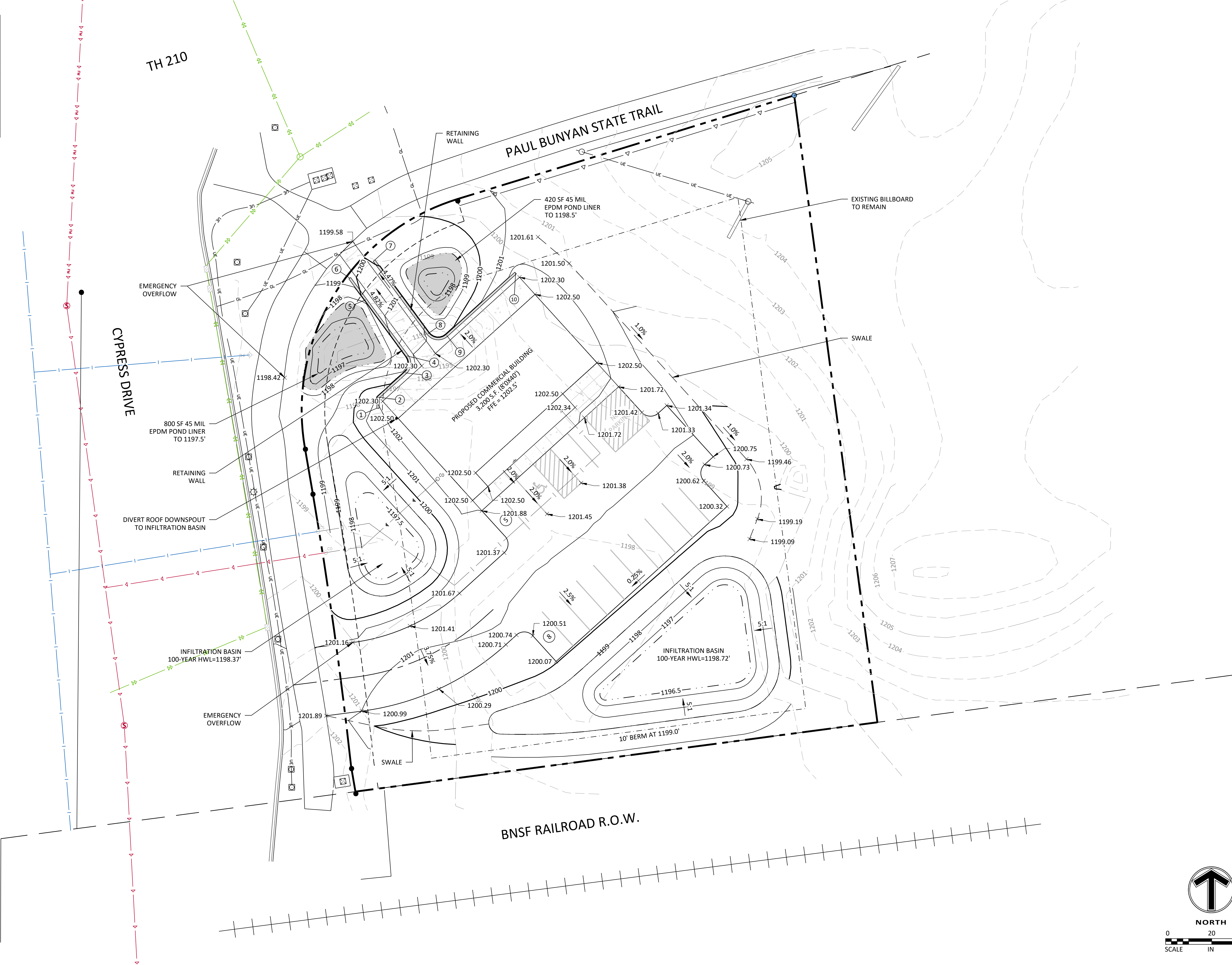
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JACS E BIKES
 SITE PLAN
 BAXTER, MINNESOTA

SHEET
 C1

RETAINING WALL BUILD HEIGHTS		
POINT NO.	TOP OF WALL ELEV. (TW)	BOTTOM OF WALL EL. (TW)
1	1202.20'	1202.20'
2	1202.20'	1201.00'
3	1202.20'	1199.70'
4	1200.87'	1199.70'
5	1200.20'	1198.00'
6	1199.53'	1199.53'
7	1200.20'	1200.20'
8	1201.53'	1199.70'
9	1202.20'	1199.70'
10	1202.20'	1202.20'



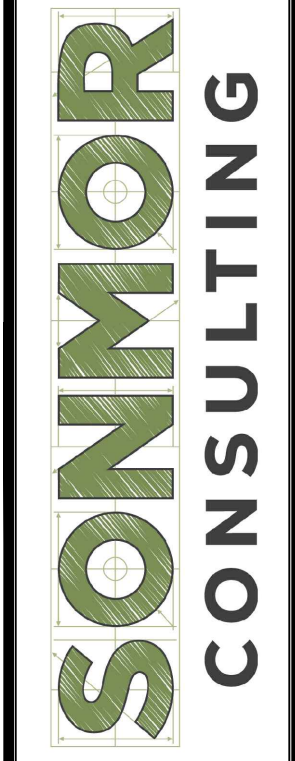
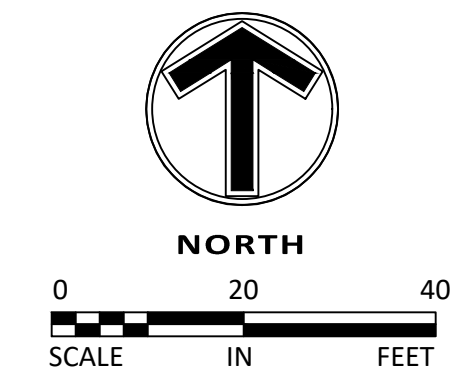
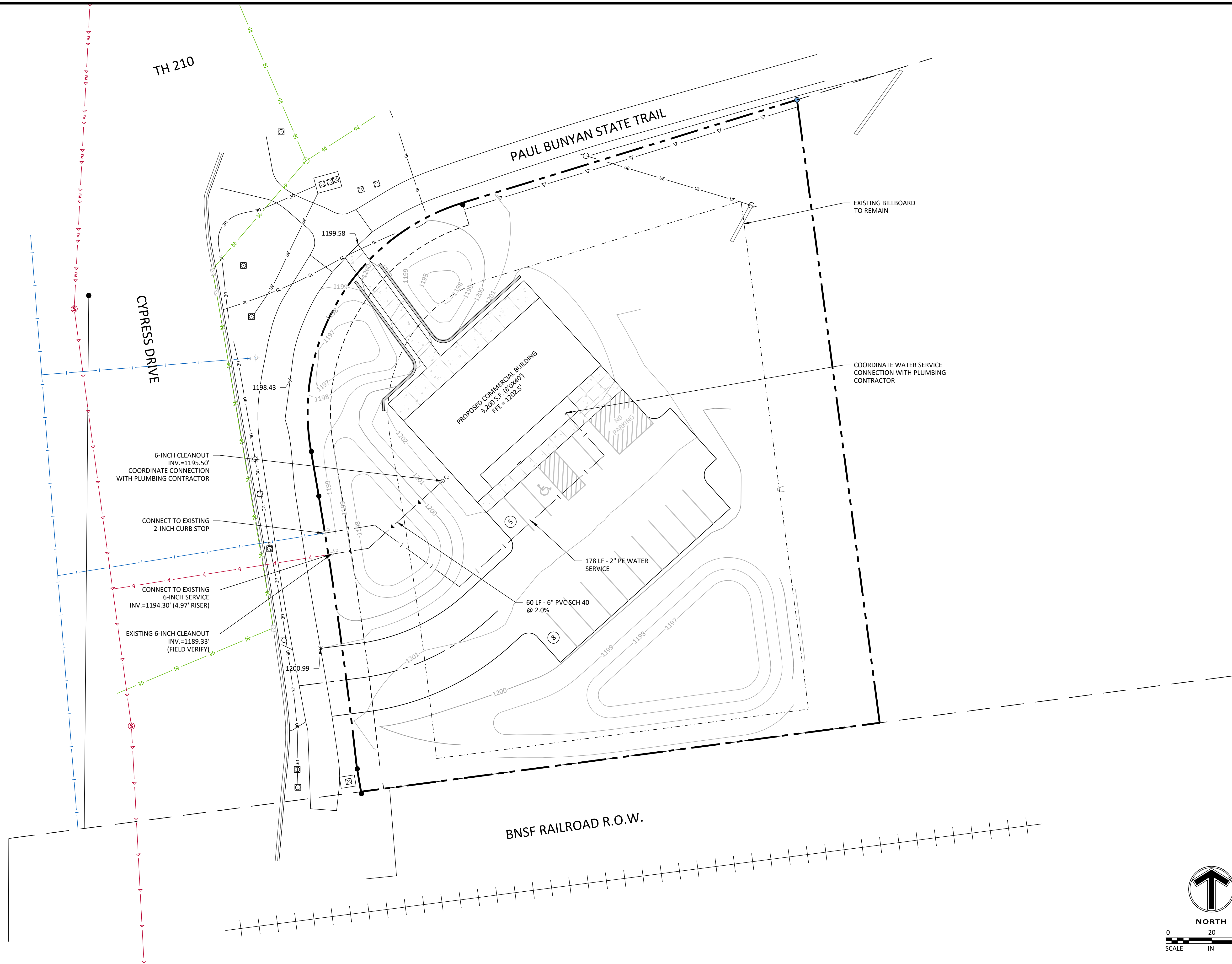
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JACS E BIKES
GRADING PLAN
BAXTER, MINNESOTA

SHEET
C2



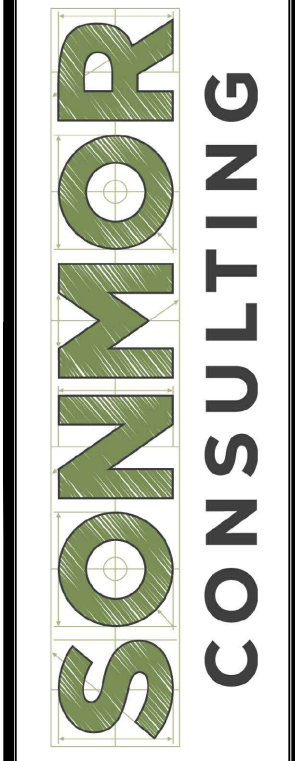
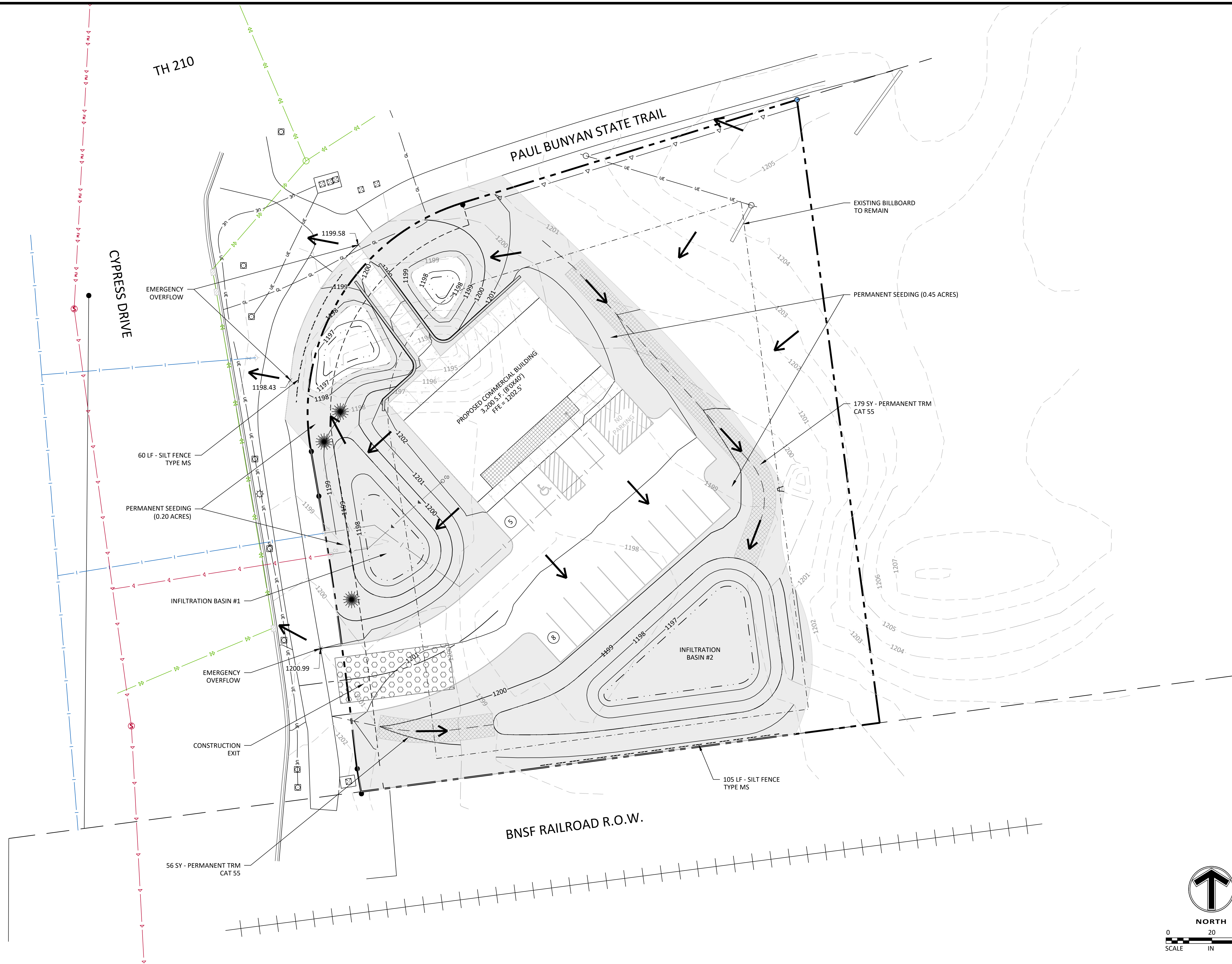
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JACS E BIKES
UTILITY PLAN
BAXTER, MINNESOTA

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C3



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JACS E BIKES
EROSION & SEDIMENT CONTROL PLAN
BAXTER, MINNESOTA

SHEET
C4

1.GENERAL INFORMATION

- A. PROJECT DESCRTIPTION & LOCATION
- A.1. THE PROJECT IS LOCATED IN BAXTER, MINNESOTA ON CROW WING COUNTY PID 40080799. THE PROPERTY LIES IN THE SOUTHEAST QUAD OF THE INTERSECTION OF CYPRESS DRIVE & TH 210.
- A.2. THE PROJECT INCLUDES THE CONSTRUCTION OF A COMMERCIAL BUILDING, BITUMINOUS PARKING LOT & DRIVEWAY, CONCRETE WALKS & STORMWATER FACILITIES.
- A.3. CONSTRUCTION WILL BEGIN IN THE SUMMER/FALL OF 2026.
- A.4. FINAL RESTORATION IS TO BE COMPLETED BY THE SUMMER OF 2027.
- B. PERMITTEE & CO-PERMITTEE
- THE CONTRACTOR SHALL BE THE CO-PERMITTEE WITH THE OWNER ON THE NPDES CONSTRUCTION STORMWATER PERMIT APPLICATION.

OWNER
SKILLINGS PROPERTIES
JUSTIN SKILLINGS
2257 COTTAGE WOODS DRIVE SW
NISSWA, MINNESOTA 56468
justinskillings@gmail.com

CONTRACTOR
TO BE DETERMINED

C. SWPPP CERTIFICATIONS

SWPPP DESIGNER
CHRISTOPHER L. SONMOR
SONMOR CONSULTING, LLC
CERTIFICATION EXPIRES: 2027

SWPPP INSTALLER/SITE MANAGER
TO BE DETERMINED

D. IMPERVIOUS AREA CALCULATIONS

TOTAL DISTURBED AREA:	1.3-ACRES
EXISTING IMPERVIOUS AREA:	0.0-ACRES
PROPOSED IMPERVIOUS AREA:	0.4-ACRES
TOTAL CHANGE IN IMPERVIOUS AREA:	1.0-ACRES

2. RECEIVING WATERS

THE PROJECT IS DESIGNED TO COLLECT AND INFILTRATE THE 100-YEAR, 24-HOUR STORM EVENT ON SITE (100% VOLUME REDUCTION). IN THE EVENT OF A LARGER STORM EVENT, THE SITE WILL OVERFLOW TO THE CYPRESS DRIVE/TH 210 RIGHT-OF-WAY.

3. PROJECT PLANS & SPECIFICATIONS

- A. THE JACS E BIKES PRELIMINARY PLANS & DRAINAGE REPORT TOGETHER WITH THIS DOCUMENT MAKE UP THE COMPLETE SWPPP.
- B. EROSION & SEDIMENT CONTROL PLANS & DETAILS ARE INCLUDED IN THE CONSTRUCTION PLANS.
- C. REFER TO THE DRAINAGE REPORT FOR ALL PERMANENT STORMWATER BMP MODEL RESULTS AND CALCULATIONS.

4. EROSION PREVENTION & SEDIMENT CONTROL PRACTICES

- A. PRIOR TO BEGINNING GRADING OPERATIONS, THE CONTRACTOR SHALL INSTALL ALL TEMPORARY EROSION & SEDIMENT CONTROL DEVICES AS INDICATED IN THE CONSTRUCTION PLANS.
- B. ALL DISTURBED SOILS NOT ACTIVELY WORKED FOR A PERIOD OF 7 DAYS SHALL BE STABILIZED. STABILIZATION INCLUDES, BUT IS NOT LIMITED TO TEMPORARY SEED/MULCH, HYRAULIC MULCH & EROSION CONTROL BLANKET.
- C. CONTRACTOR SHALL MINIMIZE CONSTRUCTION ACTIVITY IN AREAS PROPOSED FOR INFILTRATION.
- D. GRADING OPERATIONS SHALL BE PHASED AND SEQUENCED TO MINIMIZE DISTURBED AREA AND DURATION OF EXPOSED SOILS.
- E. WHEN POSSIBLE, ROUTE STORMWATER RUNOFF THROUGH VEGETATED AREAS.
- F. USE PERIMETER SILT FENCE AROUND TOPSOIL STOCKPILES. TEMPORARY SEED OR STABILIZE STOCKPILES.
- G. DISCHARGE OF TURBID OR SEDIMENT-LADEN WATERS (IF APPLICABLE) FROM DEWATERING OPERATIONS SHALL BE ROUTED THROUGH A SEDIMENT CONTROL DEVICE (SEDIMENT TRAP, BASIN OR FILTER BAG) OR A TEMPORARY SEDIMENTATION BASIN PRIOR TO DISCHARGE TO A SURFACE WATER. WHEN POSSIBLE, USE A WELL-VEGETATED AREA TO INFILTRATE AND TREAT WATER PRIOR TO DISCHARGE.
- H. IF NUISANCE CONDITIONS RESULT FROM THE THE DISCHARGE, THE PERMITTEE SHALL CEASE DEWATERING OPERATIONS IMMEDIATELY AND CORRECTIVE ACTION MUST OCCUR BEFORE DEWATERING IS RESUMED.
- I. ANY DEWATERING DISCHARGE THAT CONTAINS OIL OR GREASE SHALL BE ROUTED THROUGH A OIL-WATER SEPARATOR OR FILTRATION DEVICE.
- J. DISCHARGE FROM DEWATERING OPERATIONS MUST BE PERFORMED IN A MANNER THAT DOES NOT CAUSE EROSION OR SCOURING AT THE DISCHARGE POINT.

- K. ANTICIPATED EROSION & SEDIMENT CONTROL DEVICES & INSTALLATION SEQUENCING IS AS FOLLOWS:
- K.1. CONSTRUCTION EXIT (LS) - PRIOR TO BEGINNING GRADING OPERATIONS
- K.2. SILT FENCE (LF) - PRIOR TO BEGINNING GRADING OPERATIONS
- K.3. TEMPORARY SEEDING (AC) - AS NEEDED DURING GRADING OPERATIONS
- K.4. EROSION CONTROL BLANKET (SY) - INSTALL AT TIME OF FINAL TURF ESTABLISHMENT
- K.5. BIOROLL (EA) - INSTALL IN DITCHES AT TIME OF FINAL TURF ESTABLISHMENT
- K.6. PERMANENT SEEDING (AC) - FINAL TURF ESTABLISHMENT
- L. IF CONSTRUCTION EXIT IS OBSERVED TO BE FULL OF SEDIMENT OR SEDIMENT IS BEING TRACKED ONTO PUBLIC STREETS, THE CONSTRUCTION EXIT SHALL BE IMMEDIATELY REPLACED OR REPAIRED. THE CONTRACTOR SHALL SWEEP OR REMOVE ANY SEDIMENT TRACKED ONTO PUBLIC ROADWAYS WITHIN 24 HOURS.
- M. WHEN/IF INLET PROTECTION DEVICES BECOME CLOGGED OR ARE FULL TO 1/3 OF THEIR DESIGNED CAPACITY, CLEAN OR REPLACE THE DEVICE WITHIN 24 HOURS OF OBSERVATION OF THE DEVICE BEING CLOGGED.
- N. IF SEDIMENT IS OBSERVED AT PIPE OUTFALLS, THE SEDIMENT SHALL BE REMOVED WITHIN 24 HOURS. THE SOURCE OF THE SEDIMENT SHALL BE IDENTIFIED AND CORRECTED.

5. PERMANENT STORMWATER MANAGEMENT SYSTEM

- A. STORMWATER RUNOFF IS MANAGED ON-SITE UTILIZING ON-SITE STORMWATER BASINS TO COLLECT & INFILTRATE THE 100-YEAR, 24-HOUR STORM EVENT.

6. INSPECTION & MAINTENANCE ACTIVITIES

- A. THE CONTRACTOR SHALL PROVIDE A CERTIFIED EROSION CONTROL SUPERVISOR FOR THE PROJECT.
- B. THE EROSION CONTROL SUPERVISOR SHALL BE TRAINED TO OVERSEE THE IMPLEMENTATION OF THE SWPPP AND MANAGEMENT OF ALL EROSION PREVENTION & SEDIMENT CONTROL PRACTICES FOR THE DURATION OF THE PROJECT.
- C. THE EROSION CONTROL SUPERVISOR SHALL PERFORM ROUTINE INSPECTIONS EVERY 7 DAYS OR FOLLOWING A RAIN EVENT OF 1/2-INCH OR GREATER IN 24 HOURS.
- D. ALL INSPECTION LOGS SHALL BE KEPT ON SITE WITH THE NPDES PERMIT DOCUMENTATION.

7. POLLUTION PREVENTION MANAGEMENT MEASURES

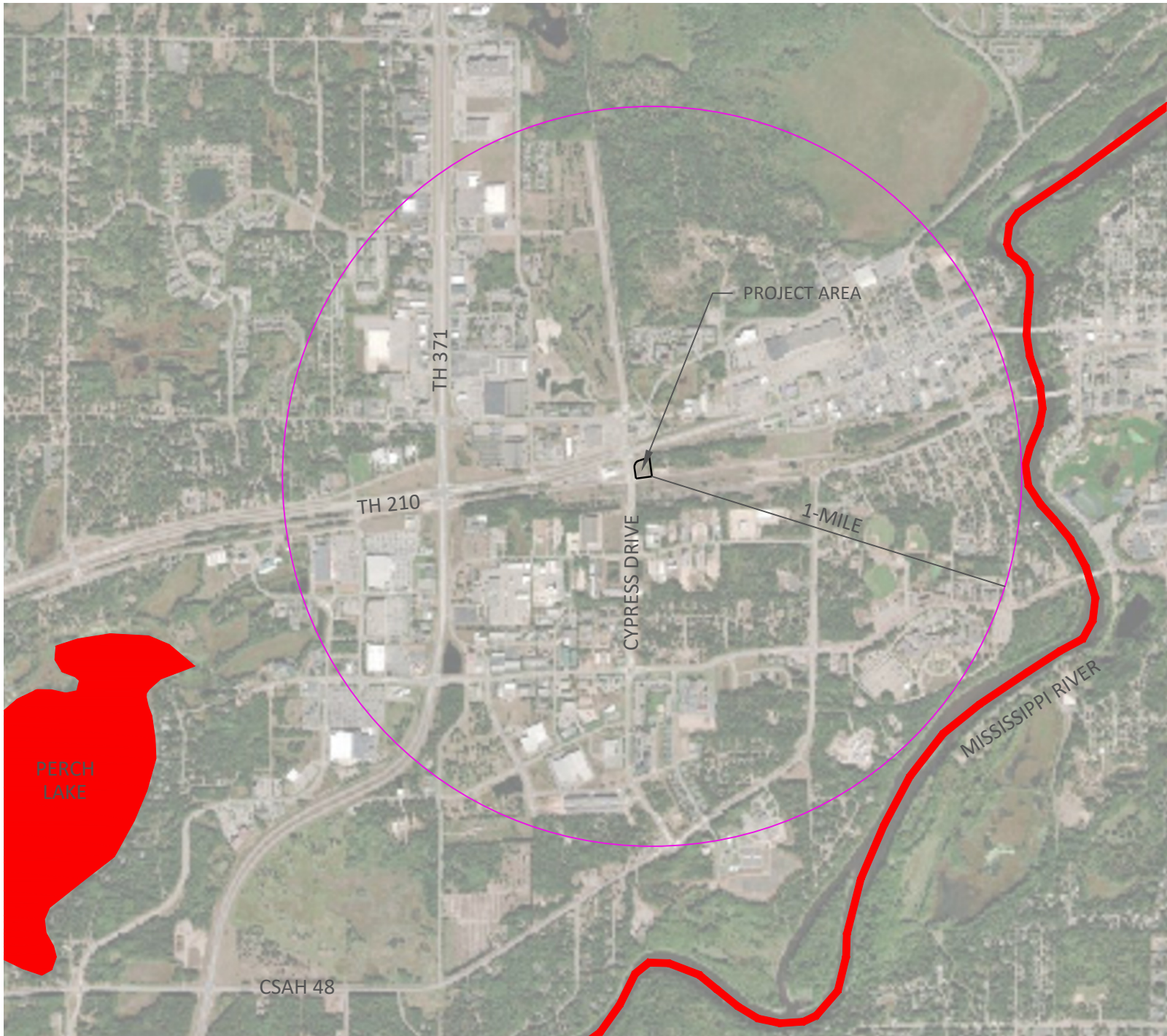
- A. THE CONTRACTOR SHALL HAVE A SPILL CONTAINMENT PLAN IN PLACE IN THE EVENT OF A SPILL.
- B. DISPOSAL BINS SHALL BE AVAILABLE ON SITE FOR COLLECTION OF SOLID WASTE. ALL SOLID WASTE SHALL BE DISPOSED OF IN ACCORDANCE WITH MPCA REQUIREMENTS.
- C. ALL HAZARDOUS MATERIALS INCLUDING BUT NOT LIMITED TO FUEL, GAS & OILS SHALL BE PROPERLY CONTAINED ON SITE TO PREVENT CONTAMINATION OR POLLUTION FROM SPILLS OR LEAKS.
- D. PORTABLE TOILETS SHALL BE PLACED ON SITE AND BE SECURE AND UNABLE TO BE TIPPED. WASTE SHALL BE DISPOSED OF IN ACCORDANCE WITH MPCA REQUIREMENTS.

8. PERMIT TERMINATION CONDITIONS

- A. FINAL STABILIZATION OF THE DISTURBED AREAS IS TO BE COMPLETED BY SEEDING WITH WITH THE SEED MIXTURES AS IDENTIFIED IN THE CONSTRUCTION PLANS.
- B. PRIOR TO THE OWNER TAKING POSSESION OF THE NEW STORMWATER TREATMENT AND COLLECTION SYSTEMS, ALL FACILITIES SHALL BE CLEANED AND FREE OF SEDIMENT AND DEBRIS.
- C. WHEN FINAL TURF ESTABLISHMENT REACHES 70% COVERAGE, TEMPORARY EROSION & SEDIMENT CONTROL DEVICES CAN BE REMOVED. THOSE MAY INCLUDE, BUT NOT BE LIMITED TO SILT FENCE, BIOROLL, INLET/OUTLET PROTECTION, & CONSTRUCTION EXITS.

9.SPECIAL OR IMPARIED WATER

- A. THE MISSISSIPPI RIVER IS LOCATED WITHIN 1-MILE OF THE SITE. IT IS IMPAIRED FOR ACQUATIC CONSUMPTION & AQUATIC LIFE.
- B. STORMWATER IS MANAGED ON SITE WITH NO DISCHARGE TO THE MISSISSPPI RIVER.



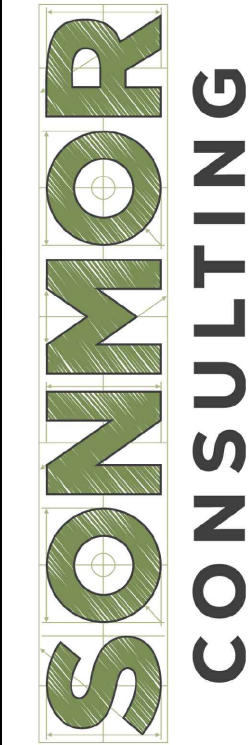
IMPAIRED & SPECIAL WATERS MAP

1" = 2,000'

ESTIMATED QUANTITIES

SITE

1. CONSTRUCTION EXIT - 1 LUMP SUM
2. SILT FENCE (SINGLE ROW) - 165 LINEAR FEET
3. PERMANENT TRM CAT 55 - 235 SQ YD
4. PERMANENT SEEDING - 0.65 ACRES
5. TEMPORARY SEEDING - 1.0 ACRES (AS NEEDED)



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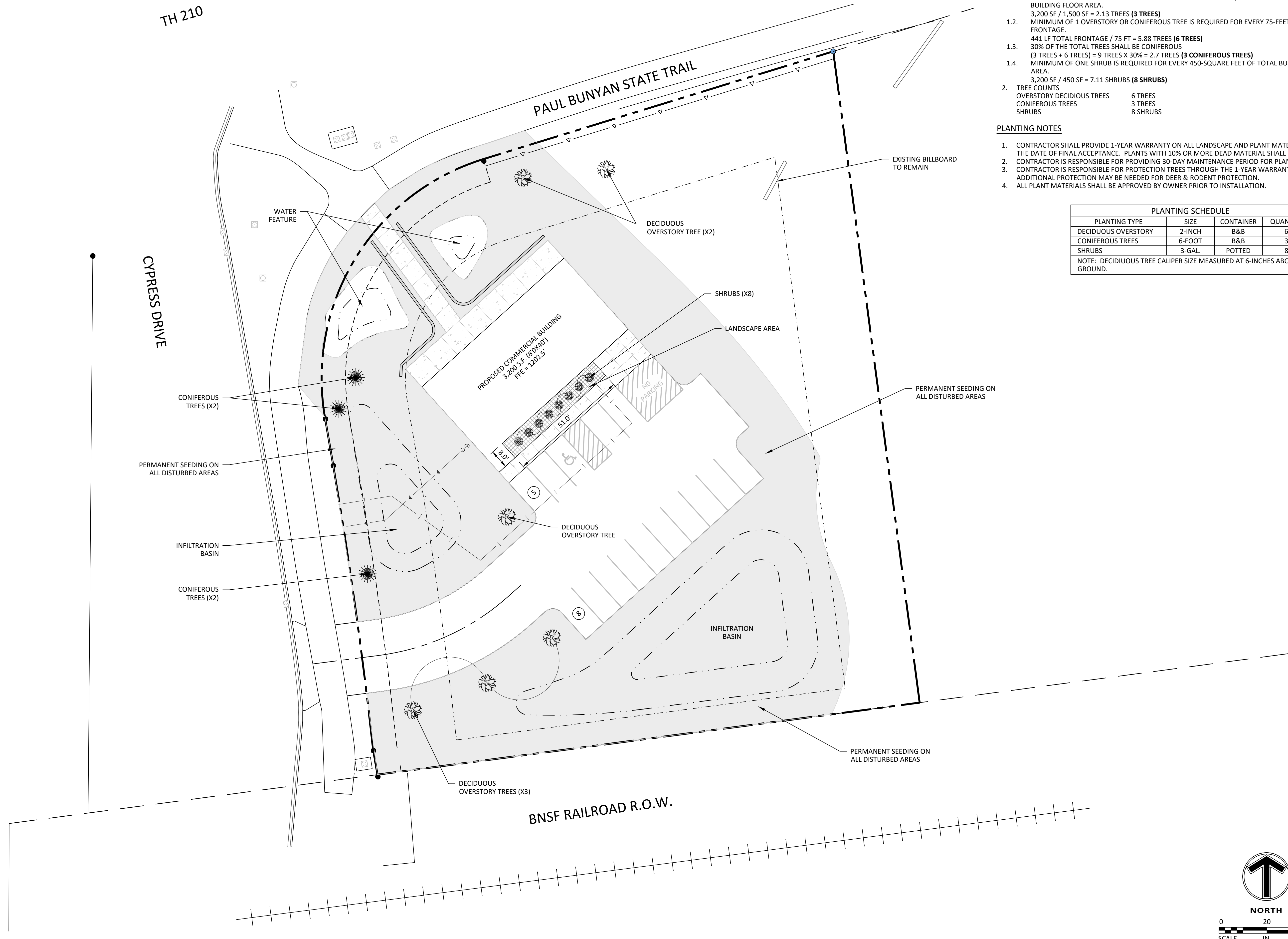
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STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

BAXTER, MINNESOTA

SHEET

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- PLANTING REQUIREMENTS**
1. TREE REQUIREMENTS
 - 1.1. MINIMUM 1 DECIDUOUS OVERSTORY OR CONIFEROUS TREE PER 1,500-SQUARE FEET OF TOTAL BUILDING FLOOR AREA.
3,200 SF / 1,500 SF = 2.13 TREES (**3 TREES**)
 - 1.2. MINIMUM OF 1 OVERSTORY OR CONIFEROUS TREE IS REQUIRED FOR EVERY 75-FEET OF ROAD FRONTAGE.
441 LF TOTAL FRONTAGE / 75 FT = 5.88 TREES (**6 TREES**)
 - 1.3. 30% OF THE TOTAL TREES SHALL BE CONIFEROUS
(3 TREES + 6 TREES) = 9 TREES X 30% = 2.7 TREES (**3 CONIFEROUS TREES**)
 - 1.4. MINIMUM OF ONE SHRUB IS REQUIRED FOR EVERY 450-SQUARE FEET OF TOTAL BUILDING FLOOR AREA.
3,200 SF / 450 SF = 7.11 SHRUBS (**8 SHRUBS**)
 2. TREE COUNTS
 - OVERSTORY DECIDUOUS TREES 6 TREES
 - CONIFEROUS TREES 3 TREES
 - SHRUBS 8 SHRUBS

- PLANTING NOTES**
1. CONTRACTOR SHALL PROVIDE 1-YEAR WARRANTY ON ALL LANDSCAPE AND PLANT MATERIALS FROM THE DATE OF FINAL ACCEPTANCE. PLANTS WITH 10% OR MORE DEAD MATERIAL SHALL BE REPLACED.
 2. CONTRACTOR IS RESPONSIBLE FOR PROVIDING 30-DAY MAINTENANCE PERIOD FOR PLANT MATERIALS.
 3. CONTRACTOR IS RESPONSIBLE FOR PROTECTION TREES THROUGH THE 1-YEAR WARRANTY. ADDITIONAL PROTECTION MAY BE NEEDED FOR DEER & RODENT PROTECTION.
 4. ALL PLANT MATERIALS SHALL BE APPROVED BY OWNER PRIOR TO INSTALLATION.

PLANTING SCHEDULE			
PLANTING TYPE	SIZE	CONTAINER	QUANTITY
DECIDUOUS OVERSTORY	2-INCH	B&B	6
CONIFEROUS TREES	6-FOOT	B&B	3
SHRUBS	3-GAL.	POTTED	8

NOTE: DECIDIUOUS TREE CALIPER SIZE MEASURED AT 6-INCHES ABOVE GROUND.

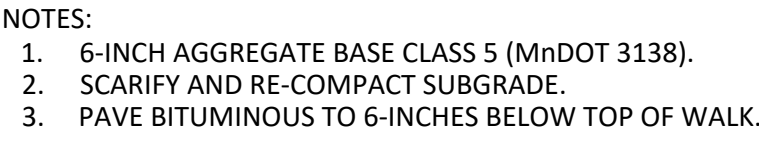
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PLANTING PLAN
BAXTER, MINNESOTA

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THICKENED EDGE SIDEWALK
NOT TO SCALE

PAVE-01



4-INCH CONCRETE SIDEWALK
NOT TO SCALE

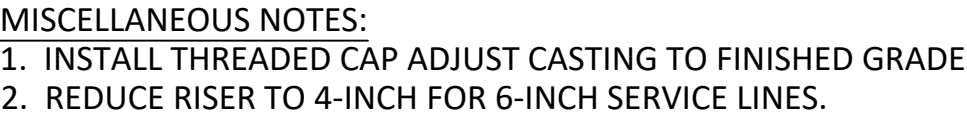
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BITUMINOUS PAVEMENT SECTION

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PAVE-03



SANITARY SEWER CLEANOUT

NOT TO SCALE

SSWR-01

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JACS E BIKES
MISCELLANEOUS DETAILS
BAXTER, MINNESOTA

SHEET

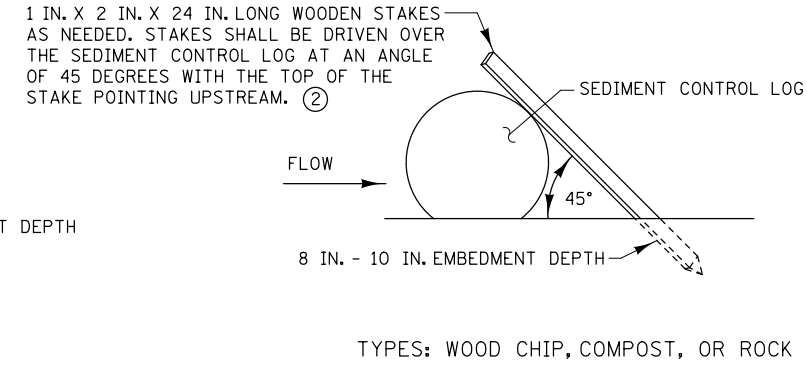
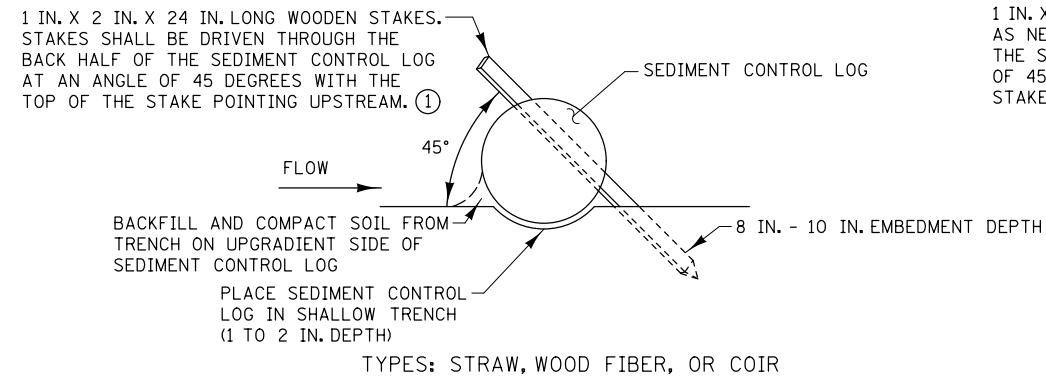
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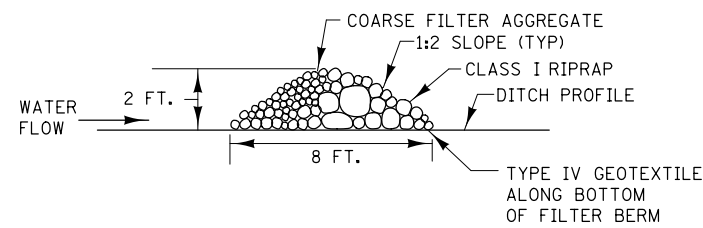


CHRISTOPHER L. SONMOR	44599	07/06/2026
	U.C. NO.	DATE

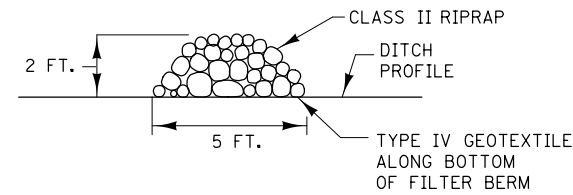
SOMOR CONSULTING



SEDIMENT CONTROL LOGS

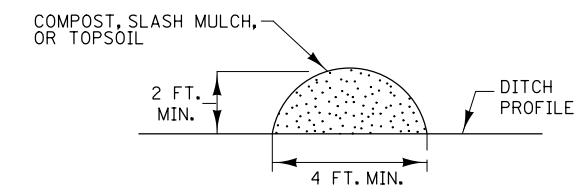


TYPE 3 (ROCK WEEPER)

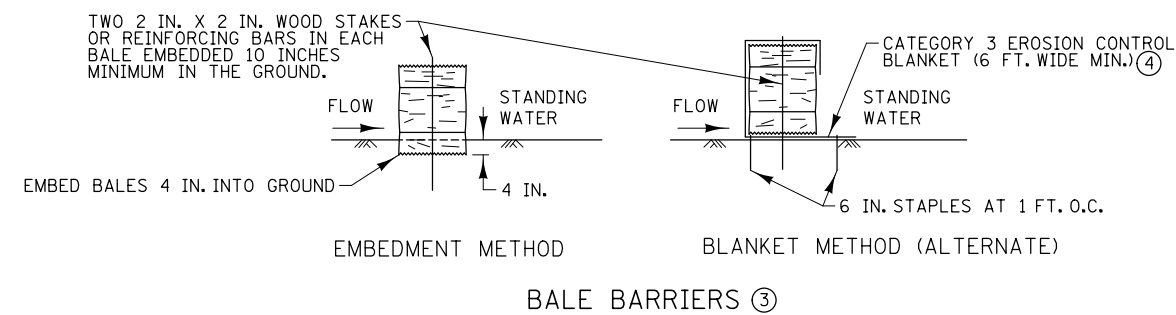


TYPE 5 (ROCK)

FILTER BERMS



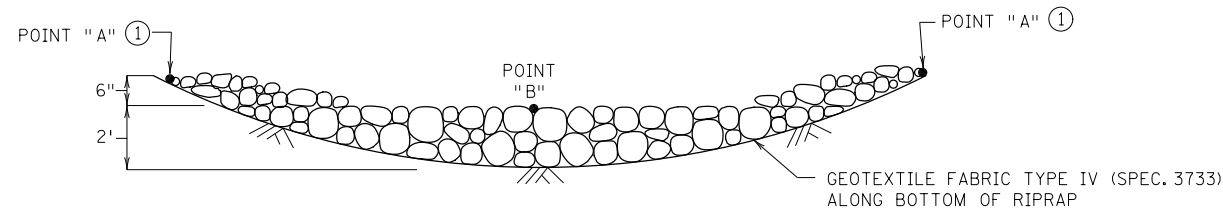
TYPE 1 (COMPOST), TYPE 2 (SLASH MULCH), OR TYPE 4 (TOPSOIL)



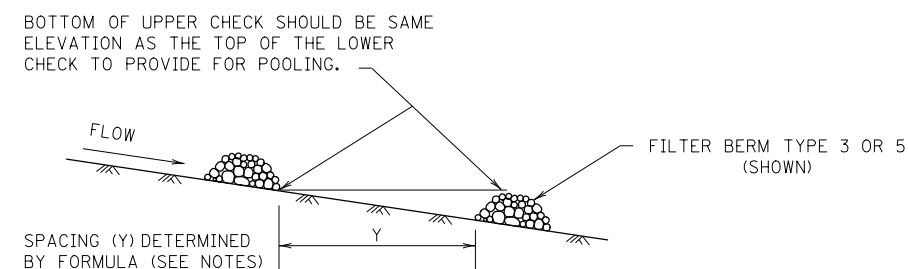
NOTES:

SEE SPECS. 2573, 3149, 3874, 3882, 3886, & 3897.

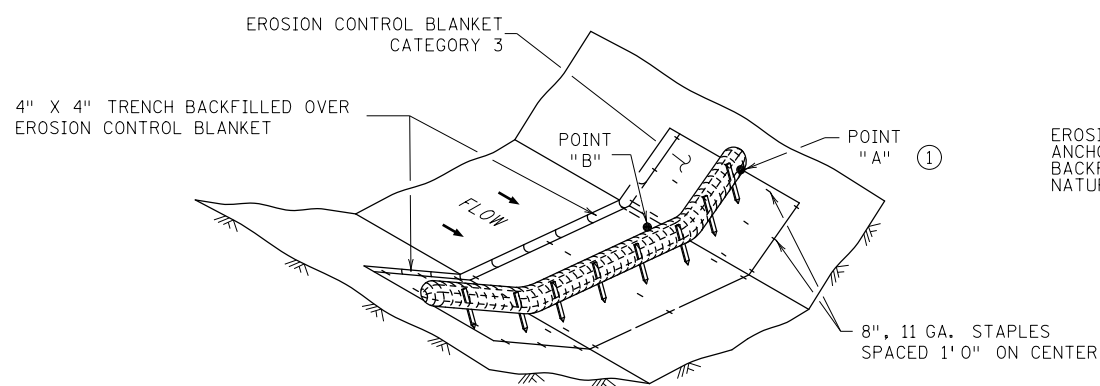
- ① SPACE BETWEEN STAKES SHALL BE A MAXIMUM OF 1 FOOT FOR DITCH CHECKS OR 2 FEET FOR OTHER APPLICATIONS.
- ② PLACE STAKES AS NEEDED TO PREVENT MOVEMENT OF SEDIMENT CONTROL LOGS PLACED ON SLOPES OR AS NEEDED DUE TO OTHER FACTORS. STAKES SHALL BE INCIDENTAL.
- ③ TO BE USED FOR CRITICAL PERIMETER CONTROL AREAS WHERE STANDING WATER OCCURS (6 INCH MAX. DEPTH). BALES SHALL CONSIST OF TYPE 1 MULCH OF APPROXIMATELY 14 IN. X 18 IN. X 36 IN. LONG. BALES SHALL BE PLACED ON EDGE AND BUTTED TIGHT TO ADJACENT BALES.
- ④ INSTEAD OF TRENCHING, PLACE BALE ON THE BLANKET AND WRAP BLANKET AROUND THE BALE. PLACE STAKE THROUGH BALE AND BLANKET.



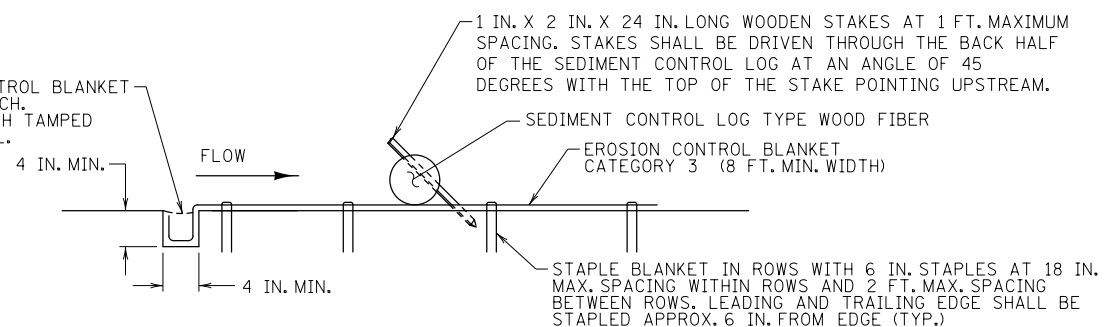
ROCK DITCH CHECKS
FILTER BERMS TYPE 3 (ROCK WEEPER) OR FILTER TYPE 5 (ROCK) ②③
(FOR USE ON ROUGH GRADED AREAS)



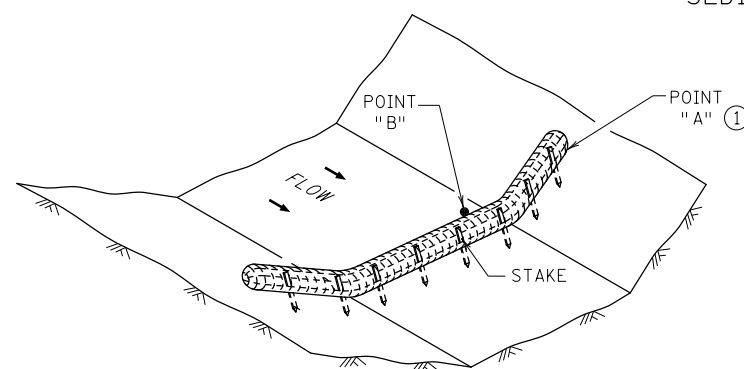
DITCH CHECK SPACING
(FOR ALL FILTER BERM TYPES)



EROSION CONTROL BLANKET
ANCHOR TRENCH.
BACKFILL WITH TAMPED
NATURAL SOIL.



SEDIMENT CONTROL LOG TYPE BLANKET SYSTEM ④



SEDIMENT CONTROL LOG TYPE WOOD FIBER, OR TYPE COMPOST ⑤
(FOR USE ON ROUGH GRADED AREAS)

NOTES:

SEE SPECS. 2573, 3601, 3733, 3885, 3886 & 3889.

FOR DITCH CHECKS, PLACE SEDIMENT CONTROL LOG PERPENDICULAR TO FLOW AND IN A CRESCENT SHAPE WITH THE ENDS FACING UPSTREAM.

APPROXIMATE SPACING BETWEEN EACH DITCH CHECK SHOULD BE DETERMINED FROM THE FOLLOWING SPACING FORMULA:

$$\text{APPROXIMATE SPACING OF DITCH CHECKS (FT.)} = Y = \frac{\text{DITCH CHECK HEIGHT (FT)}}{\% \text{ CHANNEL SLOPE}} \times 100$$

- ① POINT "A" MUST BE A MINIMUM OF 6 INCHES HIGHER THAN POINT "B" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.
- ② PERMANENT ROCK DITCH CHECKS PLACED WITHIN THE CLEAR ZONE ARE TO BE 18" OR LESS IN HEIGHT. A 1:6 APPROACH AND DEPARTURE SLOPE SHALL BE PROVIDED.
- ③ DITCH GRADE 3% - 5%, MAX. FLOW VELOCITY 12 FT./SEC..
- ④ DITCH GRADE 1.5% - 3%, MAX. FLOW VELOCITY 4.5 FT./SEC..
- ⑤ DITCH GRADE 1.5% - 3%, MAX. FLOW VELOCITY 1.5 FT./SEC..

REVISION:

APPROVED: 2-28-2017

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STATE DESIGN ENGINEER

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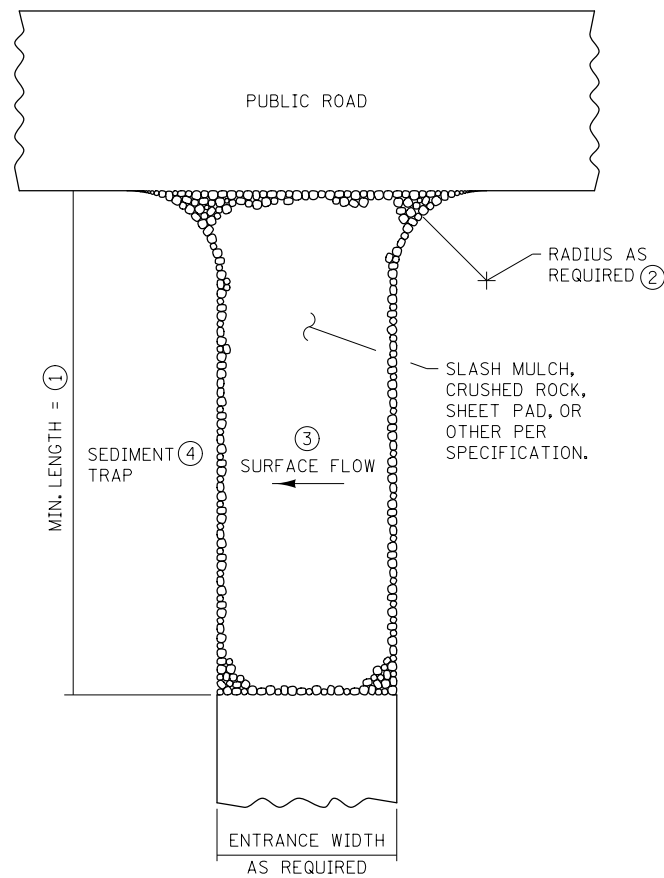
APPROVED:

2-28-2017

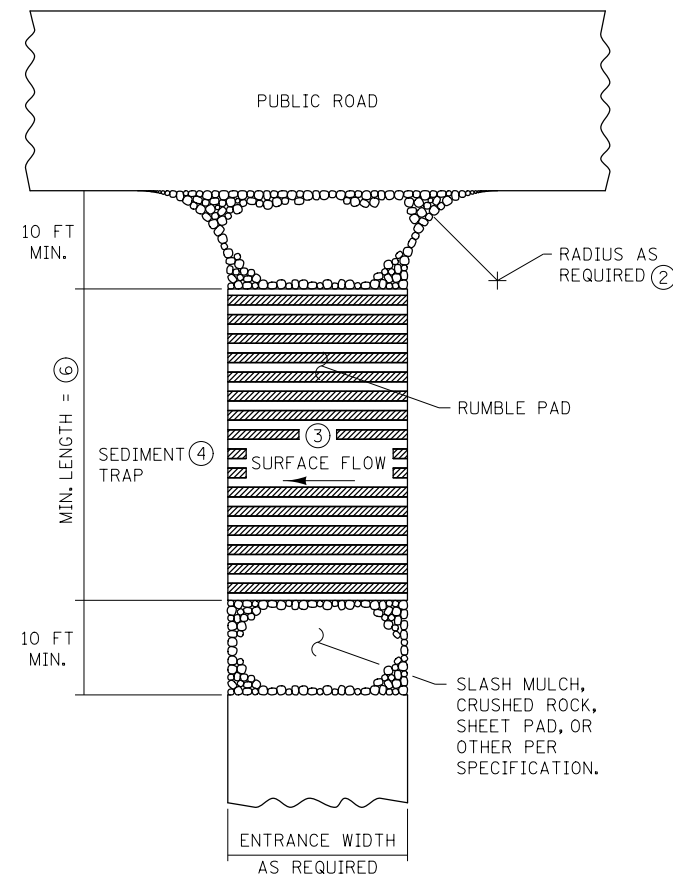
TEMPORARY SEDIMENT CONTROL
DITCH CHECK

STANDARD PLAN 5-297.405

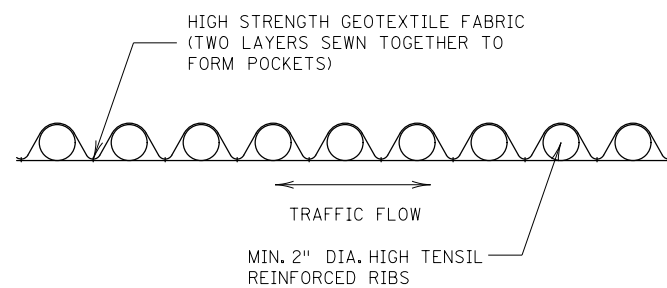
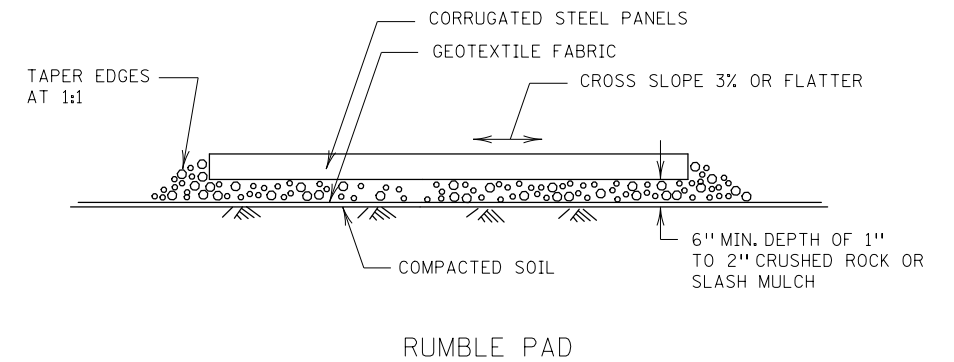
3 OF 8



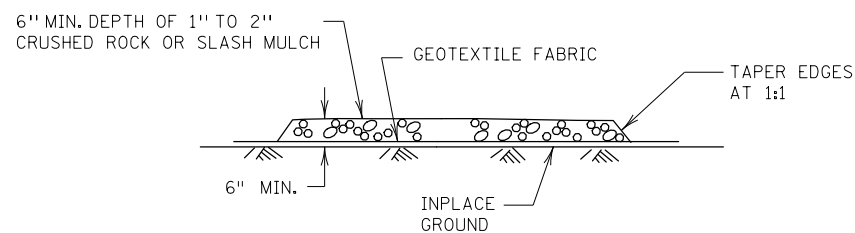
SLASH MULCH, CRUSHED ROCK, OR SHEET PAD CONSTRUCTION EXIT ⑤⑦



RUMBLE PAD CONSTRUCTION EXIT ⑤⑦



SHEET PAD



SLASH MULCH OR CRUSHED ROCK

NOTES:

SEE SPECS. 2573 & 3882.

- ① MINIMUM LENGTH SHALL BE THE GREATER OF 50 FEET OR A LENGTH SUFFICIENT TO ALLOW A MINIMUM OF 5 TIRE ROTATIONS ON THE PROVIDED PAD. MINIMUM LENGTH SHALL BE CALCULATED USING THE LARGEST TIRE WHICH WILL BE USED IN TYPICAL OPERATIONS.
- ② PROVIDE RADIUS OR WIDEN PAD SUFFICIENTLY TO PREVENT VEHICLE TIRES FROM TRACKING OFF OF PAD WHEN LEAVING SITE.
- ③ IF RUNOFF FROM DISTURBED AREAS FLOWS TOWARD CONSTRUCTION EXITS, PREVENT RUNOFF FROM DRAINING DIRECTLY TO PUBLIC ROAD OVER CONSTRUCTION EXIT BY CROWNING THE EXIT OR SLOPING TO ONE SIDE. IF SURFACE GRADING IS INSUFFICIENT, PROVIDE OTHER MEANS OF INTERCEPTING RUNOFF.
- ④ IF RUNOFF FROM CONSTRUCTION EXITS WILL DRAIN OFF OF PROJECT SITE, PROVIDE SEDIMENT TRAP WITH STABILIZED OVERFLOW.
- ⑤ IF A TIRE WASH OFF IS REQUIRED THE CONSTRUCTION EXITS SHALL BE GRADED TO DRAIN THE WASH WATER TO A SEDIMENT TRAP.
- ⑥ MINIMUM LENGTH OF RUMBLE PAD SHALL BE 20 FEET, OR AS REQUIRED TO REMOVE SEDIMENT FROM TIRES. IF SIGNIFICANT SEDIMENT IS TRACKED FROM THE SITE, THE RUMBLE PAD SHALL BE LENGTHENED OR THE DESIGN MODIFIED TO PROVIDE ADDITIONAL VIBRATION. WASH-OFF LENGTH SHALL BE AS REQUIRED TO EFFECTIVELY REMOVE CONSTRUCTION SEDIMENT FROM VEHICLE TIRES.
- ⑦ MAINTENANCE OF CONSTRUCTION EXITS SHALL OCCUR WHEN THE EFFECTIVENESS OF SEDIMENT REMOVAL HAS BEEN REDUCED. MAINTENANCE SHALL CONSIST OF REMOVING SEDIMENT AND CLEANING THE MATERIALS OR PLACING ADDITIONAL MATERIAL (SLASH MULCH OR CRUSHED ROCK) OVER SEDIMENT FILLED MATERIAL TO RESTORE EFFECTIVENESS.

REVISION:

APPROVED: 2-28-2017

[Signature]

CHIEF ENVIRONMENTAL OFFICER

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MINNESOTA

DEPARTMENT OF TRANSPORTATION

REVISED:

APPROVED:

2-28-2017

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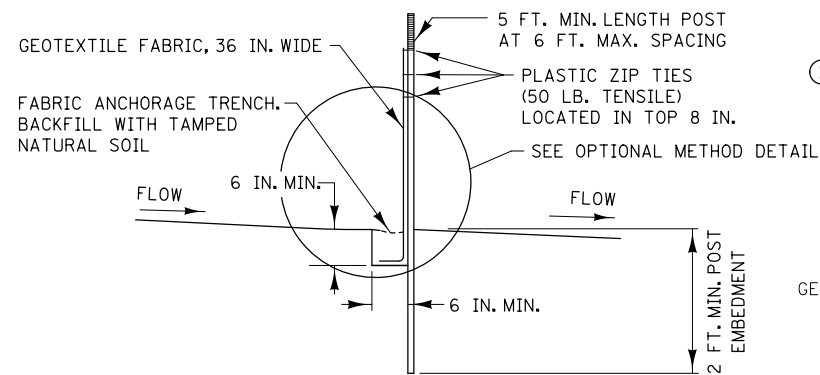
STATE DESIGN ENGINEER

TEMPORARY SEDIMENT CONTROL

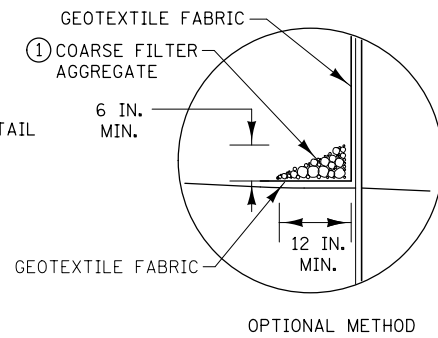
STABILIZED CONSTRUCTION EXIT

STANDARD PLAN 5-297.405

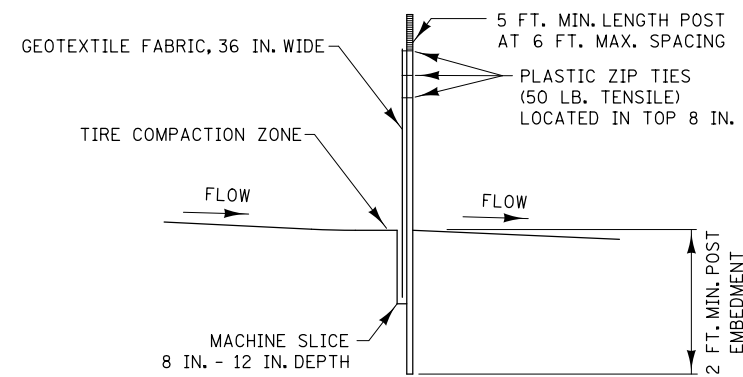
5 OF 8



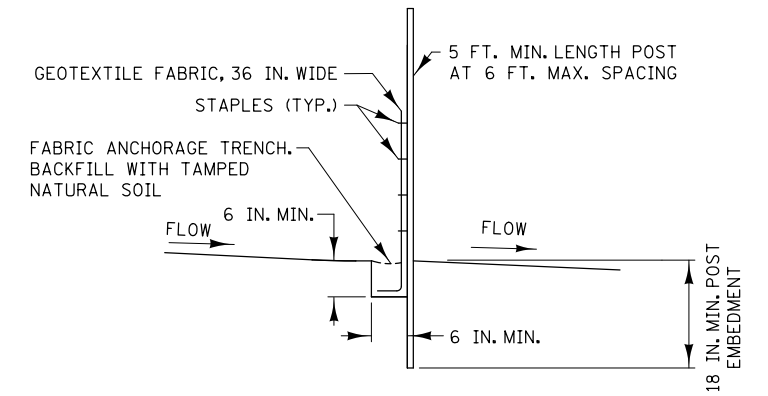
SILT FENCE TYPE HI ②
(HAND INSTALLED)



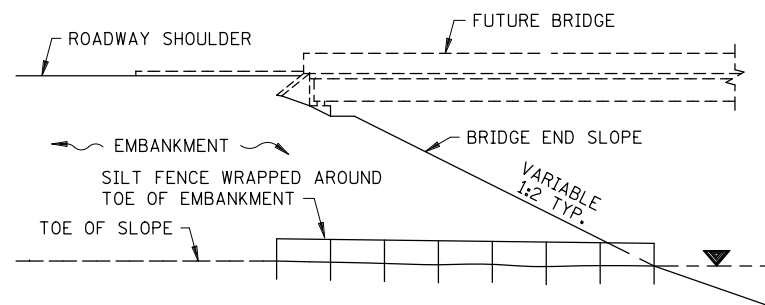
OPTIONAL METHOD



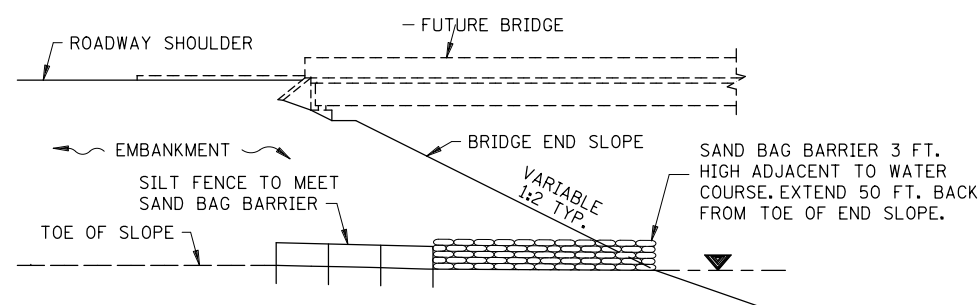
SILT FENCE TYPE MS ②
(MACHINE SLICED)



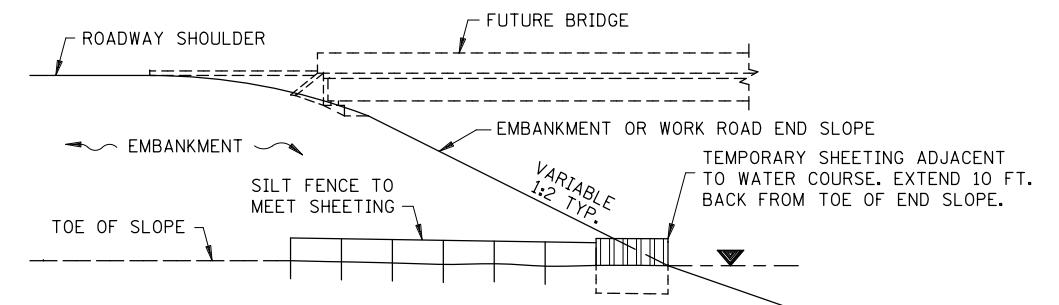
SILT FENCE TYPE PA ③
(PREASSEMBLED)



SILT FENCE ONLY ④

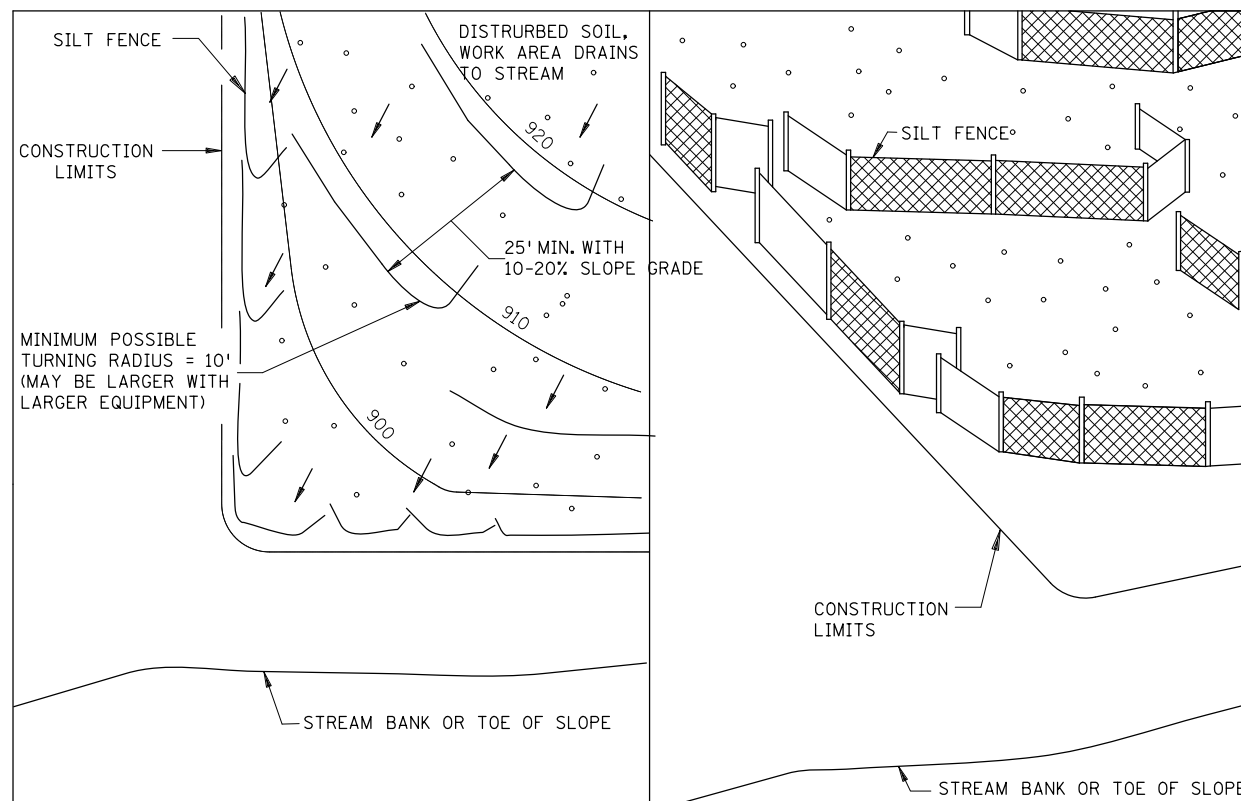


SILT FENCE WITH SAND BAGS ⑤



SILT FENCE WITH SHEETING ⑥

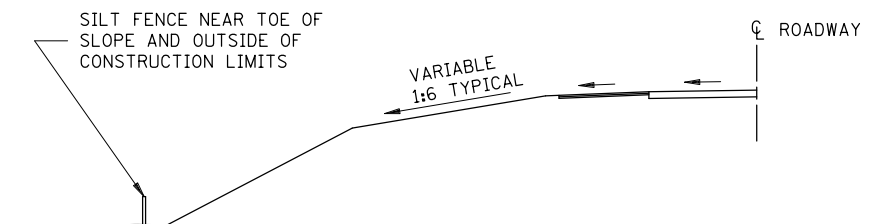
INSTALLATION AT BRIDGE EMBANKMENT ADJACENT TO WATER



PLAN VIEW

PERSPECTIVE VIEW

J-HOOK INSTALLATION



LOCATION AT TOE OF ROADWAY EMBANKMENT

NOTES:

SEE SPECS. 2573, 3149 & 3886.

- ① COARSE FILTER AGGREGATE (SPEC. 3149) SHALL BE INCIDENTAL.
- ② TO PROTECT AREAS FROM SHEET FLOW. MAXIMUM CONTRIBUTING AREA: 1 ACRE.
- ③ TO PROTECT AREAS FROM SHEET FLOW. MAXIMUM CONTRIBUTING AREA: 0.25 ACRE.
- ④ WATER COURSE FLOW VELOCITY: STANDING. CONTRIBUTING SLOPE AREA: 1/2 ACRE.
- ⑤ WATER COURSE FLOW VELOCITY: 1 TO 7 FT./SEC. CONTRIBUTING SLOPE AREA: 1 ACRE.
- ⑥ WATER COURSE FLOW VELOCITY: 8 TO 15 FT./SEC. CONTRIBUTING SLOPE AREA: 3 ACRES.

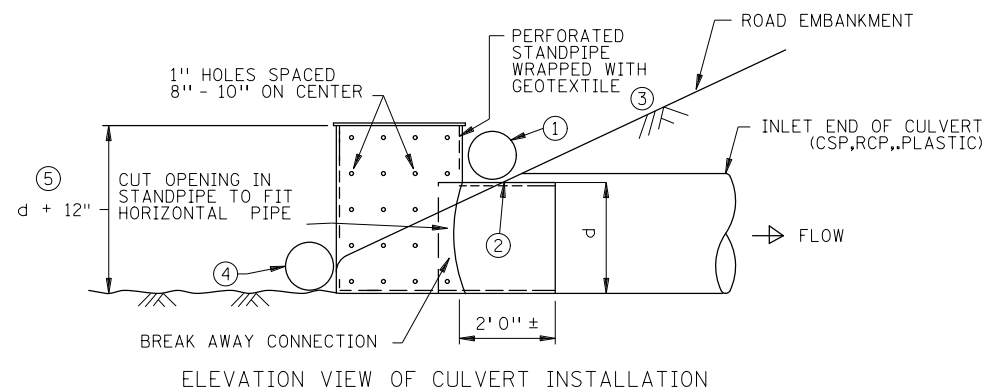
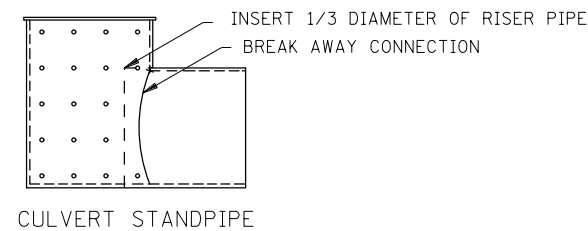
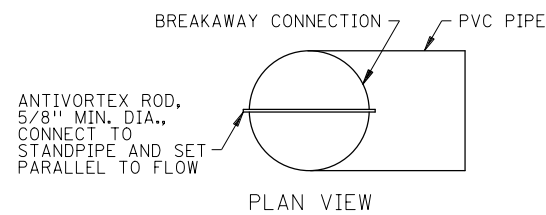
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APPROVED: 2-28-2017
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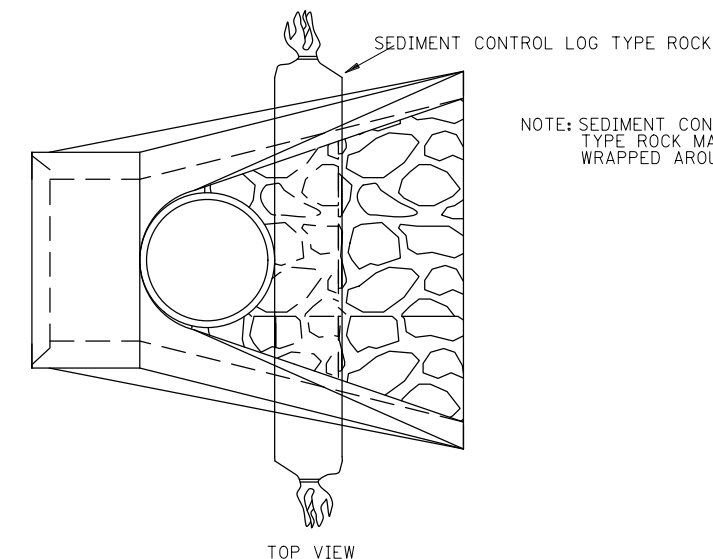
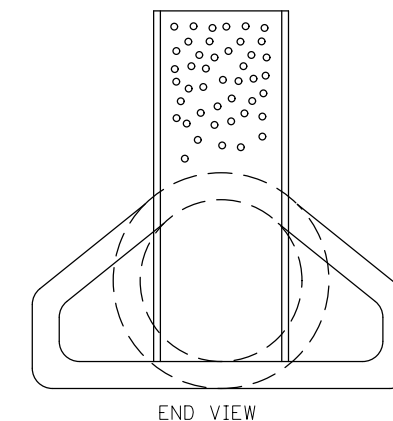
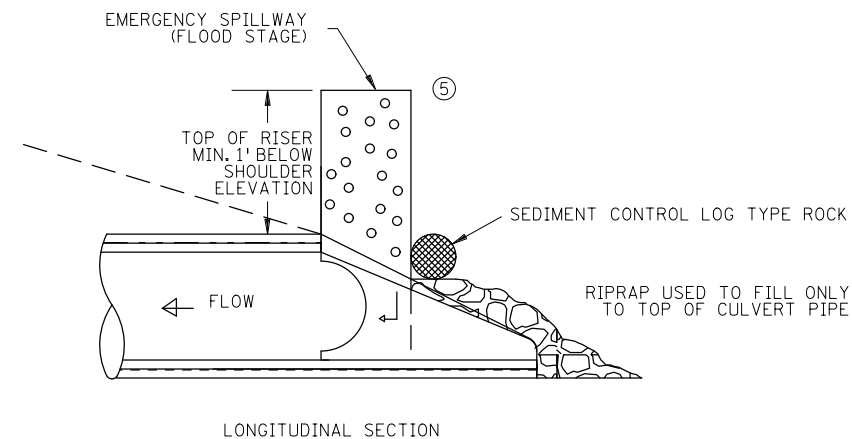
STATE DESIGN ENGINEER

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APPROVED:
2-28-2017

TEMPORARY SEDIMENT CONTROL
SILT FENCE
STANDARD PLAN 5-297.405
6 OF 8

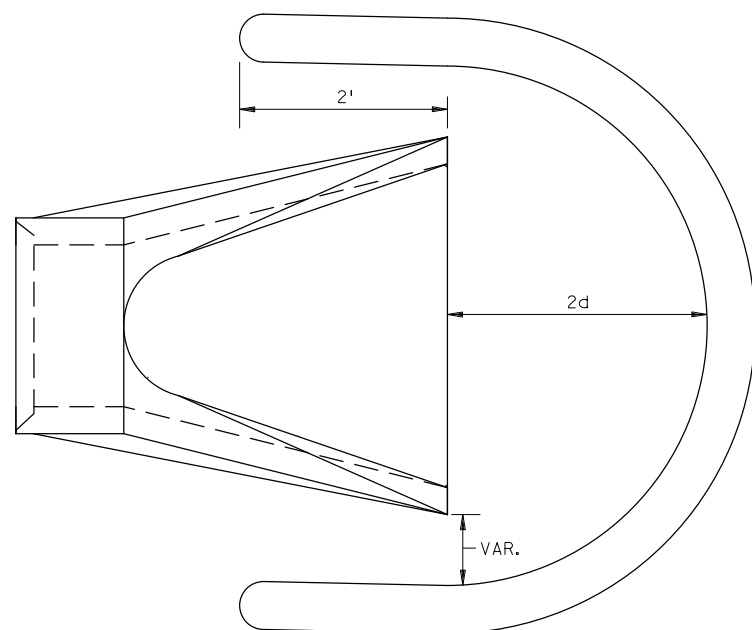


CULVERT STANDPIPE INSERT (D-RISER)
d= CULVERT SIZE: 12" - 36"

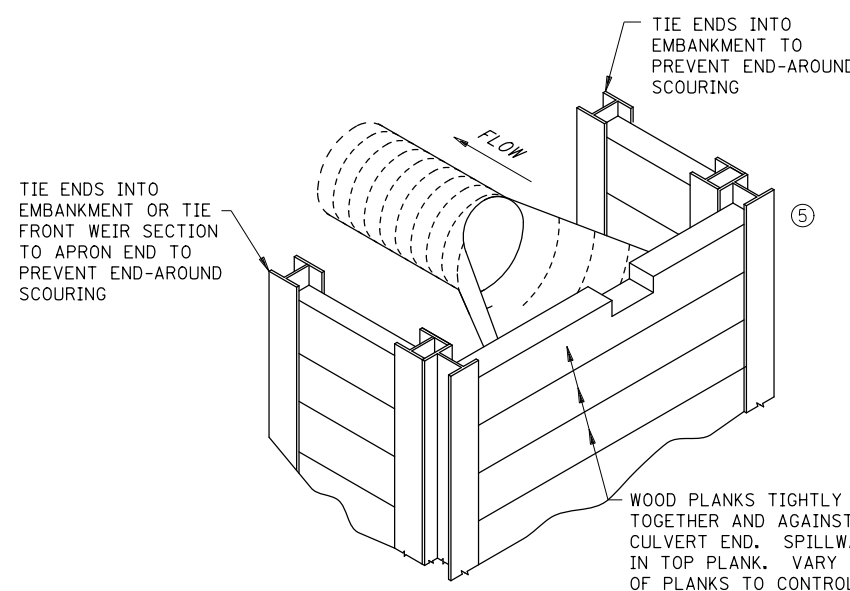


CULVERT STANDPIPE INSERT (D-RISER)

NOTE: SEDIMENT CONTROL LOG TYPE ROCK MAY BE WRAPPED AROUND RISER



SEDIMENT CONTROL LOG WEIR
(COMPOST, WOOD CHIP, OR ROCK)
d = CULVERT SIZE: 12" - 36"



WOOD PLANK WEIR

NOTES:

- SEE SPECS. 2573, 3891 & 3893.
- FOR USE WHEN TEMPORARY PONDING IS NEEDED IN DITCH SECTIONS FOR SEDIMENT CONTROL.
- MANUFACTURED ALTERNATIVES LISTED ON MnDOT'S APPROVED PRODUCTS LIST MAY BE SUBSTITUTED AT NO ADDITIONAL COST.
- ROCK LOG OR SANDBAG TO HOLD STANDPIPE AND ACT AS A SEAL BETWEEN RISER PIPE AND CULVERT.
- PLACE CULVERT APRON AND SLIDE TEMPORARY STANDPIPE INTO CSP OR RCP CULVERT.
- ALL GEOTEXTILE USED FOR CULVERT PROTECTION SHALL BE MONOFILAMENT IN BOTH DIRECTIONS, MEETING SPEC. 3886 FOR MACHINE SLICED.
- ROCK LOG OR RIP RAP TO HOLD STANDPIPE AND ACT AS A FILTER BETWEEN RISER PIPE AND CULVERT.
- HEIGHT OVERFLOW NOT TO CAUSE FLOODING OF ROAD OR ADJACENT PROPERTIES.

REVISION:

APPROVED: 2-28-2017

[Signature]
CHIEF ENVIRONMENTAL OFFICER

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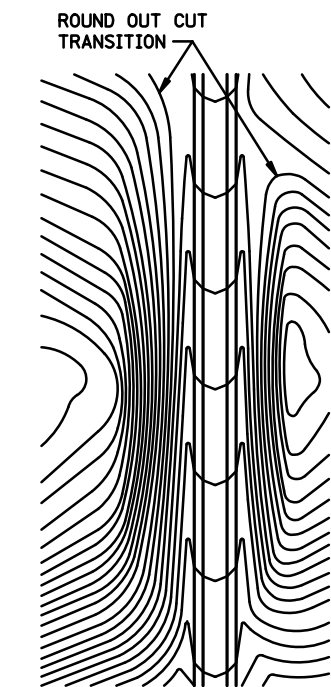
APPROVED:

2-28-2017

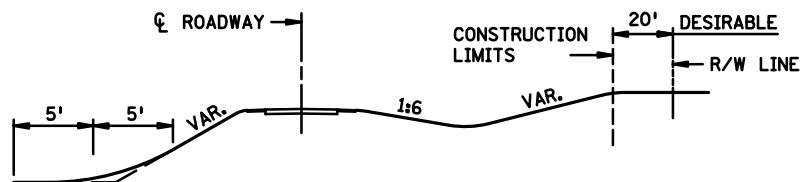
TEMPORARY SEDIMENT CONTROL
CULVERT END CONTROLS

STANDARD PLAN 5-297.405

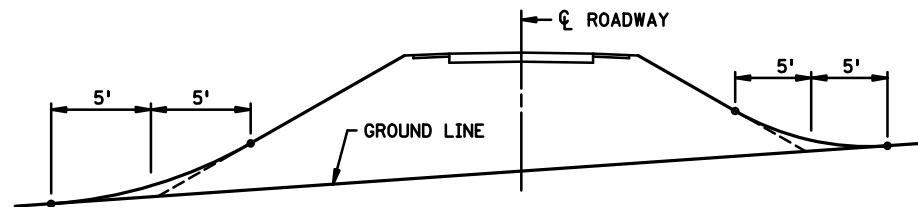
8 OF 8



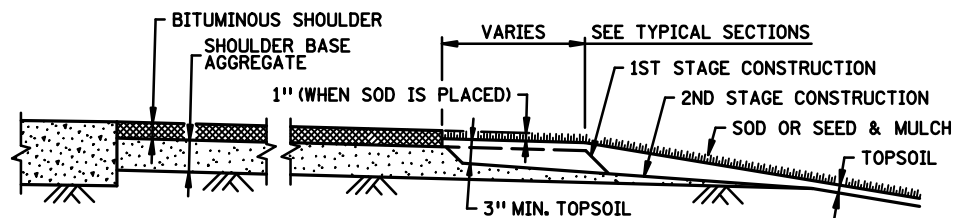
CONTOURING ROAD CUTS



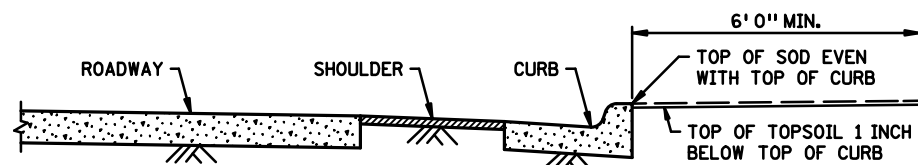
ROUNDING SHOULDERS AND BACKSLOPES



SHAPING FOR DRAINAGE ALONG THE TOE OF FILL SLOPES

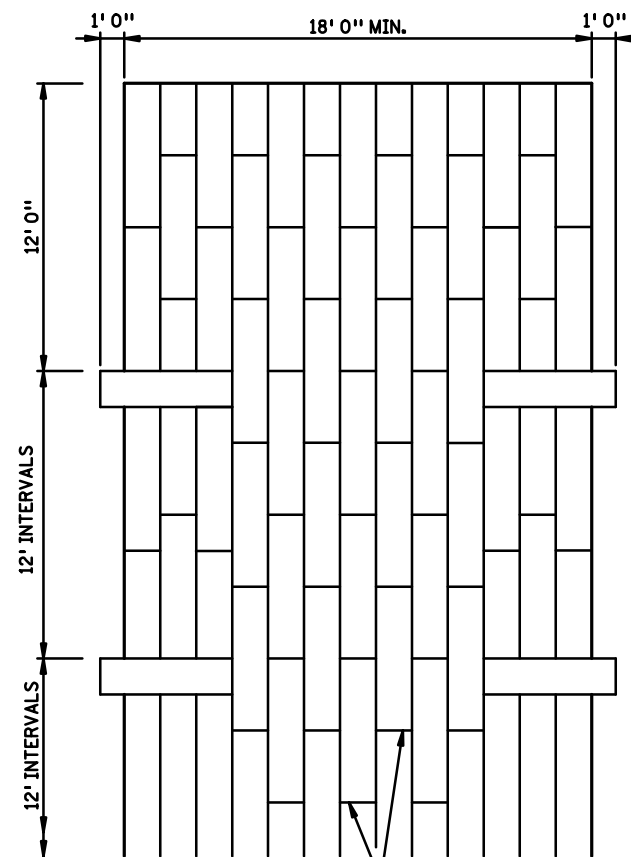


SHAPING AND TOPSOILING INSLOPES

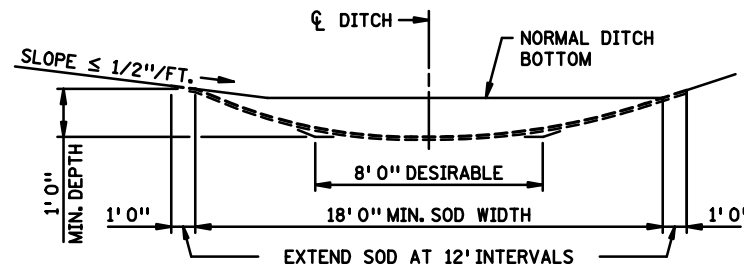


SHAPING ADJACENT TO CURBS WHEN SOD IS PLACED

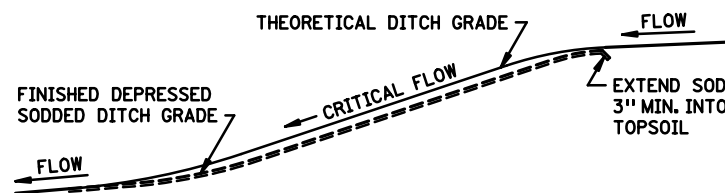
NOTES:
SEE SPEC. 2575.3 FOR ADDITIONAL INFORMATION.
① CONSTRUCT TAPER AS DIRECTED BY THE ENGINEER.



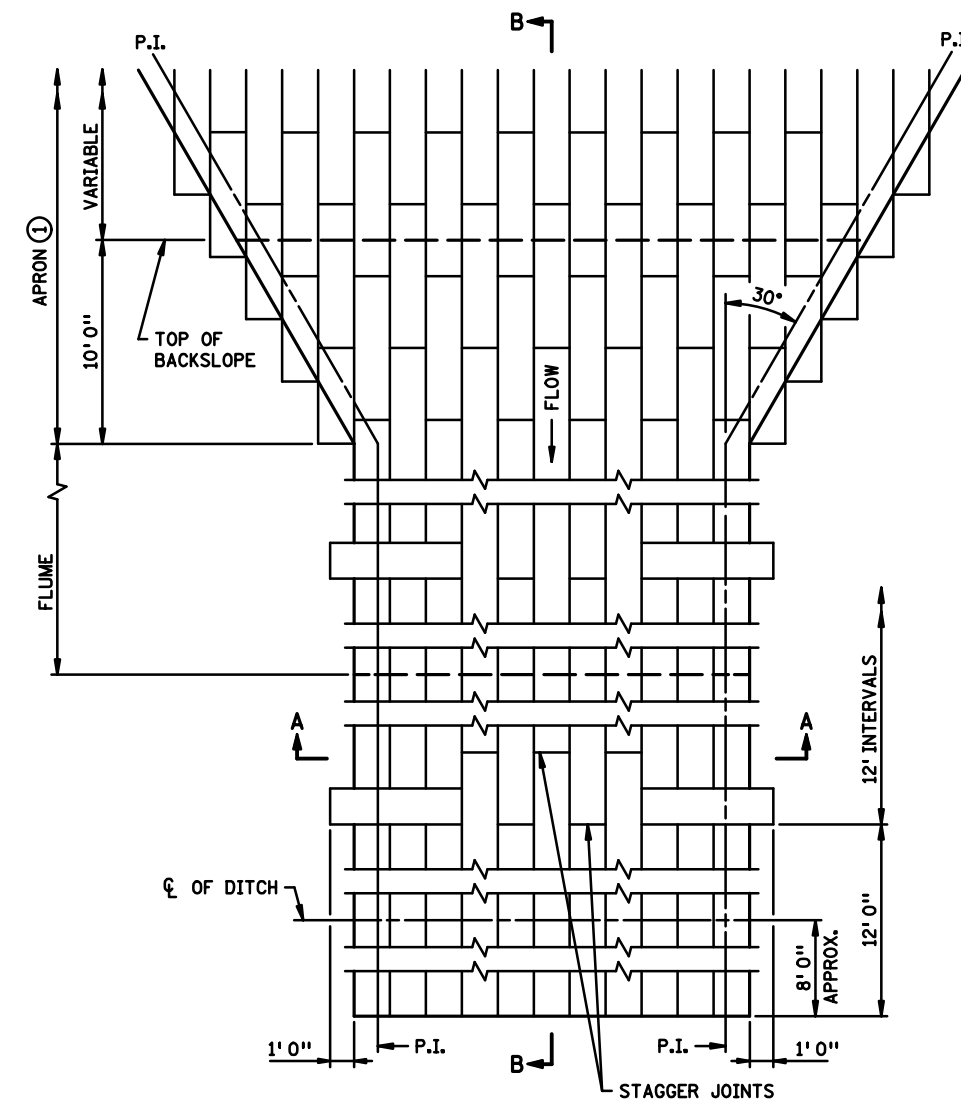
PLAN VIEW



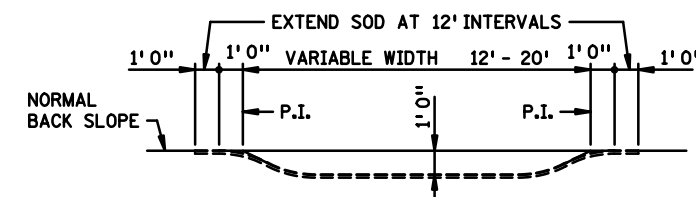
SODDED DITCH CROSS SECTION
WHERE FRONT OR BACK SLOPE IS FLAT (LESS THAN 1/2"/FT.), FIRST NOTCH DITCH AND THEN PROVIDE ROUNDING.



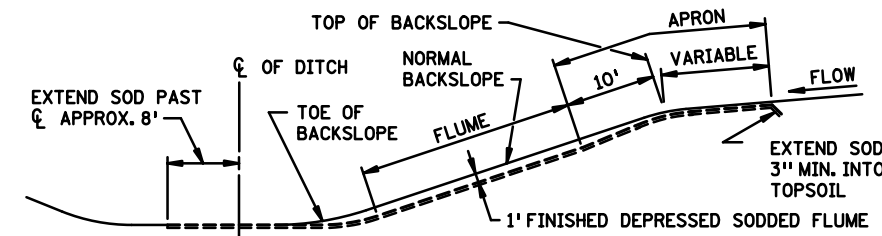
DITCH PROFILE
SODDED DITCH DETAILS



PLAN VIEW



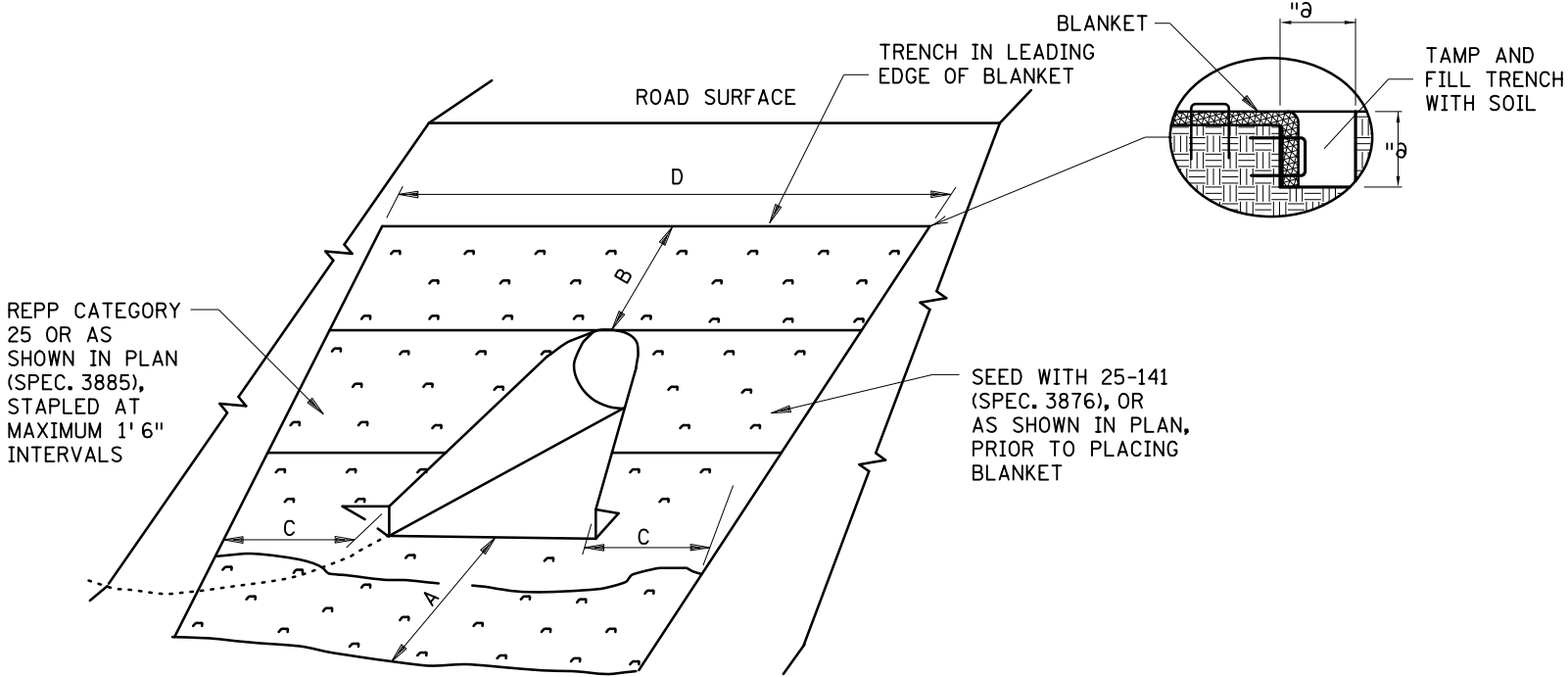
SECTION A-A



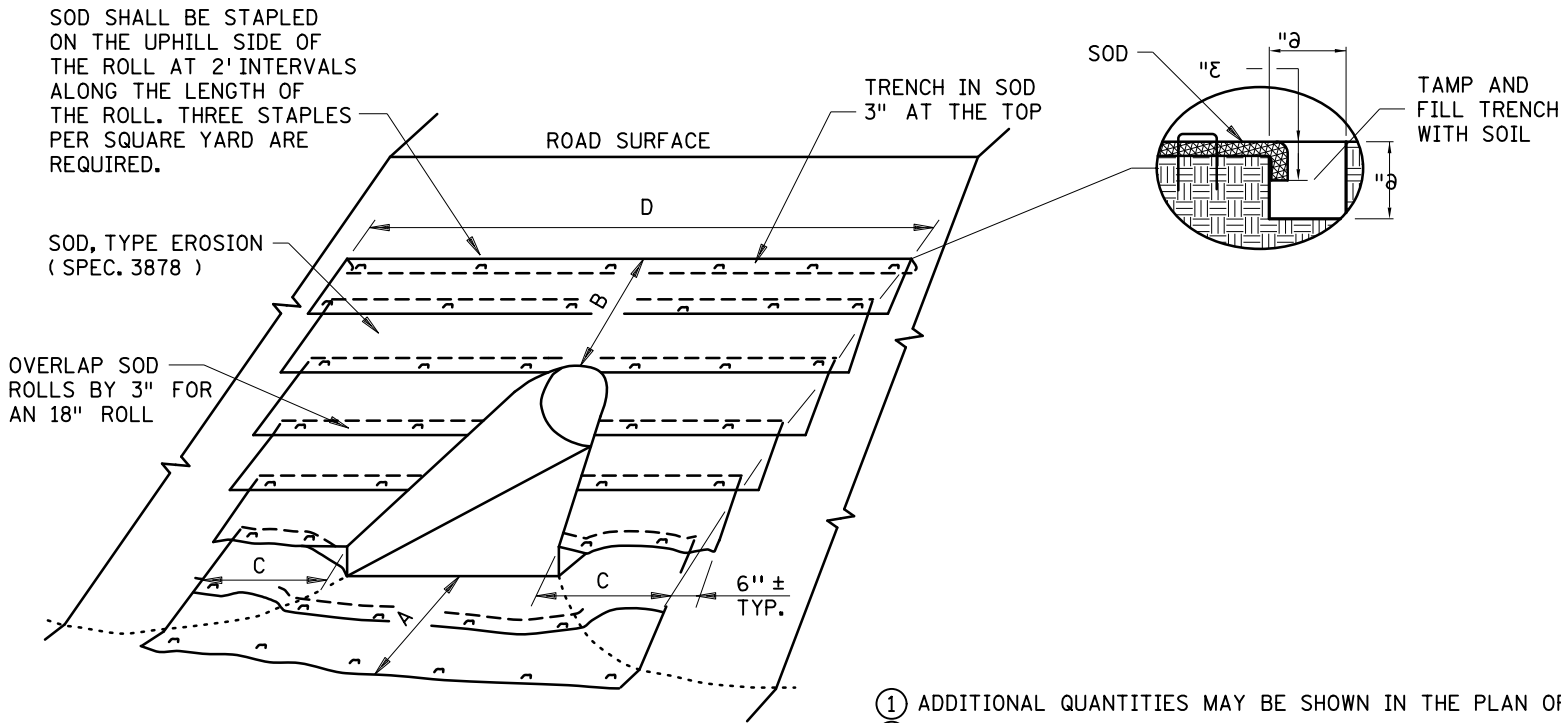
SECTION B-B

SODDED FLUME DETAILS

LEAD EXPERT OFFICE		LYNN CLARKOWSKI CHIEF ENVIRONMENTAL OFFICER OFFICE OF ENVIRONMENTAL STEWARDSHIP		PERMANENT EROSION CONTROL ALONG ROADWAYS, DITCHES AND FLUMES		APPROVED: 02-28-2017 REVISED:	 THOMAS STYRBICKI STATE DESIGN ENGINEER	STANDARD PLAN 5-297.404	1 OF 3		
				STANDARD PLAN				STATE PROJ. NO.		SHEET NO.	
								TRUNK HWY.		TOTAL SHEETS	



ROLLED EROSION PREVENTION PRODUCT (BLANKET) & SEED DETAIL



SODDING DETAIL

- ① ADDITIONAL QUANTITIES MAY BE SHOWN IN THE PLAN OR REQUIRED BY THE ENGINEER.
② FOR ARCH PIPE USE CLOSEST CIRCULAR PIPE DIAMETER AND APRON SLOPE. DIAMETERS LARGER THAN 72" REQUIRE SPECIAL DESIGNS.

CULVERT INLET APRON ①									
CULVERT DIAMETER ②	SOD OR REPP (SQ. YDS.)						"A"	"B"	"C"
	CIRCULAR AND ARCH PIPE METAL APRON (PLATE 3123, PLATE 3122)	CIRCULAR AND ARCH PIPE CONCRETE APRON (PLATE 3100, PLATE 3110)	CIRCULAR AND ARCH PIPE METAL SAFETY APRON 1:4 SLOPE (PLATE 3148)	CIRCULAR AND ARCH PIPE METAL SAFETY APRON 1:6 SLOPE (PLATE 3148)	CIRCULAR CORRUGATED METAL PIPE SAFETY APRON 1:6 SLOPE (PLATE 3128)	CIRCULAR CORRUGATED METAL PIPE SAFETY APRON 1:4 SLOPE (PLATE 3128)			
15"	9	9	8	8	N/A	N/A	3'	1.5'	3'
18"	13	12	12	14	16	N/A	3'	3'	3'
21"	14	14	14	16	18	14	3'	3'	3'
24"	16	15	16	19	21	17	3'	3'	3'
27"	N/A	20	N/A	N/A	N/A	N/A	3'	4.5'	3'
30"	23	22	25	30	32	N/A	3'	4.5'	3'
36"	34	34	39	48	51	37	4.5'	4.5'	4.5'
42"	43	40	51	64	N/A	N/A	4.5'	6'	4.5'
48"	54	50	66	82	N/A	N/A	4.5'	7.5'	4.5'
54"	65	58	81	102	N/A	N/A	4.5'	9'	4.5'
60"	69	59	91	115	N/A	N/A	4.5'	9'	4.5'
66"	69	63	N/A	N/A	N/A	N/A	4.5'	9'	4.5'
72"	78	72	99	122	N/A	N/A	4.5'	10.5'	4.5'

CULVERT OUTLET APRON ①									
CULVERT DIAMETER ②	SOD OR REPP (SQ. YDS.)						"A"	"B"	"C"
	CIRCULAR AND ARCH PIPE METAL APRON (PLATE 3123, PLATE 3122)	CIRCULAR AND ARCH PIPE CONCRETE APRON (PLATE 3100, PLATE 3110)	CIRCULAR AND ARCH PIPE METAL SAFETY APRON 1:4 SLOPE (PLATE 3148)	CIRCULAR AND ARCH PIPE METAL SAFETY APRON 1:6 SLOPE (PLATE 3148)	CIRCULAR CORRUGATED METAL PIPE SAFETY APRON 1:6 SLOPE (PLATE 3128)	CIRCULAR CORRUGATED METAL PIPE SAFETY APRON 1:4 SLOPE (PLATE 3128)			
15"	10	10	9	10	N/A	N/A	4.5'	1.5'	3'
18"	13	13	12	14	15	N/A	6'	1.5'	3'
21"	16	14	16	18	19	15	6'	1.5'	3'
24"	18	18	18	21	22	18	7.5'	1.5'	3'
27"	N/A	19	N/A	N/A	N/A	N/A	7.5'	1.5'	3'
30"	23	23	24	28	29	N/A	9'	1.5'	3'
36"	36	35	38	47	48	37	10.5'	1.5'	4.5'
42"	43	40	47	58	N/A	N/A	12'	1.5'	4.5'
48"	50	46	57	70	N/A	N/A	13.5'	1.5'	4.5'
54"	57	50	67	84	N/A	N/A	15'	1.5'	4.5'
60"	74	63	90	113	N/A	N/A	16.5'	1.5'	6'
66"	75	67	N/A	N/A	N/A	N/A	16.5'	1.5'	6'
72"	77	70	92	114	N/A	N/A	16.5'	1.5'	6'

NOTES:

REPP = ROLLED EROSION PREVENTION PRODUCT.

AREA SHOWN IN SQUARE YARDS IS FOR ONE CULVERT END.

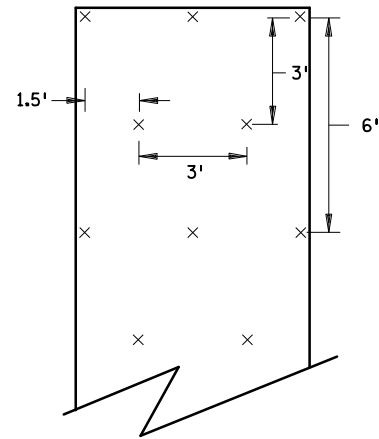
QUANTITIES ARE CALCULATED TO INCLUDE SOD REQUIRED TO PROVIDE A 3" OVERLAP ON ALL 18" WIDE ROLLS. THIS ALLOWS FOR SHRINKAGE OF THE SOD.

FOR PIPE ARCHES USE EQUIVALENT PIPE DIAMETER TO APPROXIMATE AREA.

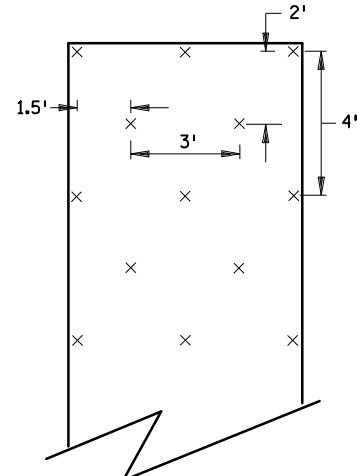
FOR CORRUGATED POLYETHYLENE PIPE METAL APRON (PLATE 3129), USE THE METAL APRON COLUMN (PLATE 3123).

AREAS AND DIMENSIONS ARE APPROXIMATE AND ARE BASED ON APRON SIDE SLOPES OF NO STEEPER THAN 1:2, UNLESS INDICATED AS FOR SAFETY APRONS.

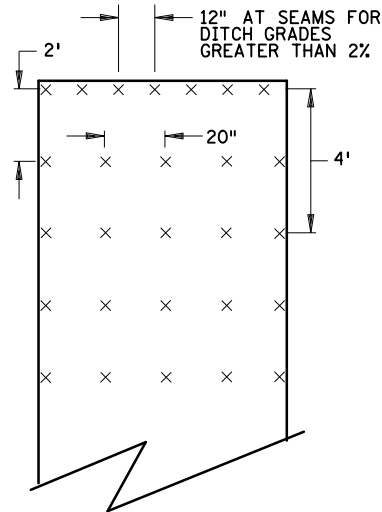
CARE SHOULD BE TAKEN IN SELECTING SOD TO STABILIZE THE APRON. RIP-RAP SHOULD BE USED FOR FLOW VELOCITIES GREATER THAN 6 FPS.



SLOPES FLATTER THAN 1:2
120 STAPLES PER 100 SQ YD

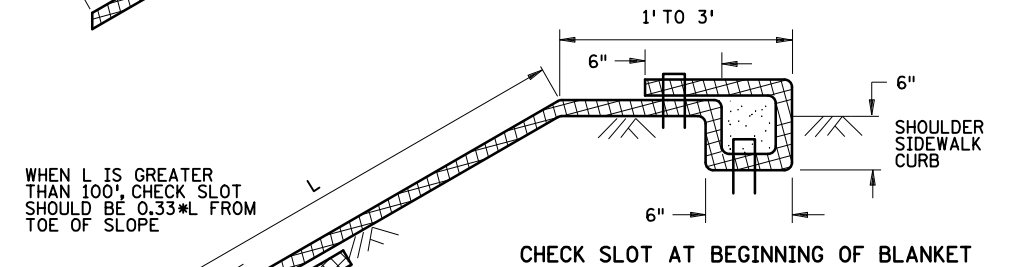
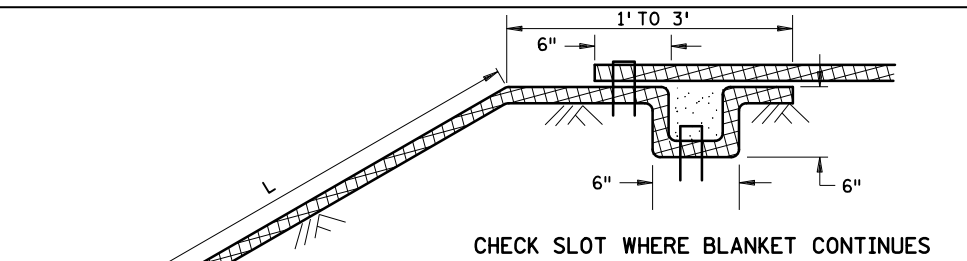


SLOPES 1:2 TO 1:1
170 STAPLES PER 100 SQ YD

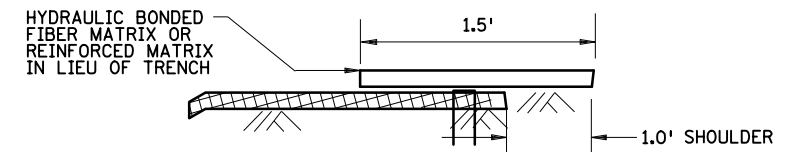


CHANNEL AND DITCH APPLICATIONS
350 STAPLES PER 100 SQ YD

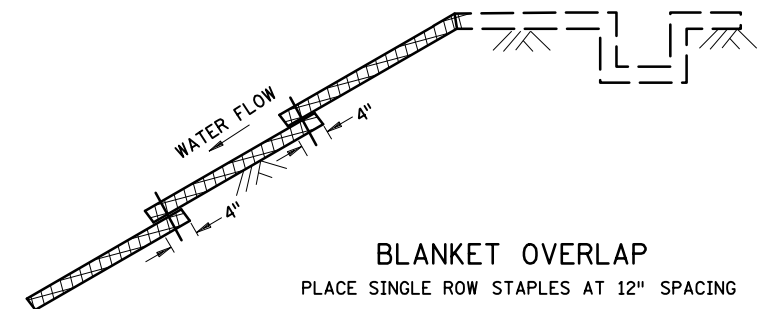
BLANKET STAPLE PATTERN



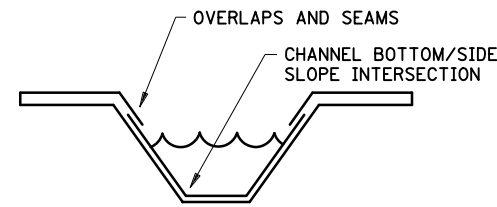
CHECK SLOT REQUIREMENTS
DIG 6" BY 6" TRENCH.
INSERT BLANKET INTO ENTIRE TRENCH PERIMETER.
PLACE SINGLE ROW STAPLES AT 3' SPACING ALONG THE BOTTOM OF THE TRENCH.
BACKFILL TRENCH WITH SOIL AND TAMP.
PLACE SINGLE ROW STAPLES AT 3' SPACING ON OVERLAP.



CHECK SLOT DETAILS



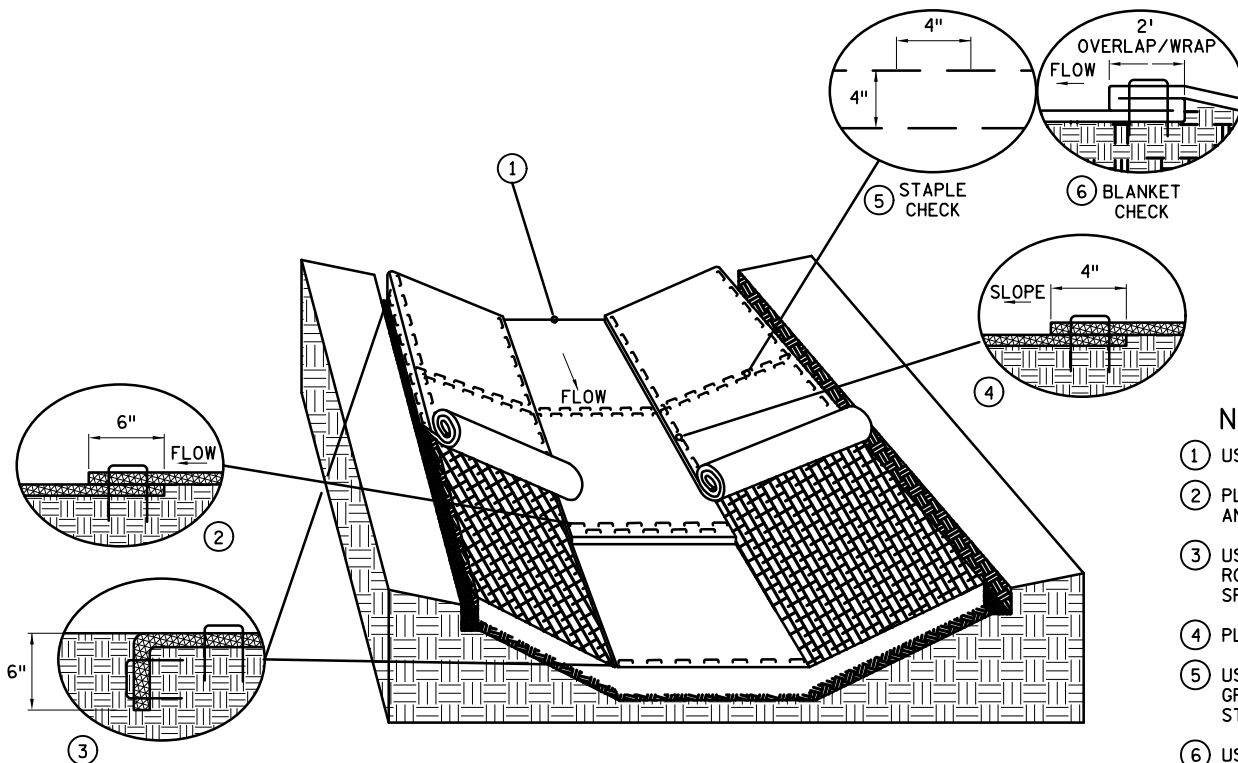
GENERAL BLANKET INSTALLATION REQUIREMENTS
REPP = ROLLED EROSION PREVENTION PRODUCT.
PREPARE SOIL AS PER SPECIFICATION 2574.
LAY PARALLEL OR PERPENDICULAR TO THE DIRECTION OF WATER FLOW.
OVERLAP ADJACENT STRIP EDGES A MINIMUM OF 4".
OVERLAP BLANKET 6" (MINIMUM) AT EACH END. OVERLAP BOTTOM END OF UPPER BLANKET OVER TOP END OF LOWER BLANKET. STAPLE ALONG OVERLAP EVERY 1.5'.
THE UPPERMOST BLANKET OF ALL SLOPE APPLICATIONS MUST START IN A CHECK SLOT. IF SLOPE LENGTH (L) IS 100' OR GREATER, INSERT BLANKET INTO A CHECK SLOT 1/2 FROM THE BOTTOM OF THE SLOPE.



DITCH BLANKET CRITICAL POINTS ⑦

NOTES:

- ① USE CHECK SLOT DETAIL (NO ALTERNATES).
- ② PLACE DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER.
- ③ USE 6" X 6" TRENCH TO PLACE BLANKET. PLACE SINGLE ROW OF STAPLES ON TOP AND TRENCH SIDES AT 12" SPACING. BACKFILL TRENCH WITH SOIL AND TAMP.
- ④ PLACE SINGLE ROW OF STAPLES AT 12" SPACING.
- ⑤ USE STAPLE CHECK FOR CHANNEL SLOPES LESS THAN 2.5%. GRADE AT 100' INTERVALS. PLACE DOUBLE ROW OF STAPLES STAGGERED 4" APART AND AT 4" SPACING.
- ⑥ USE BLANKET CHECKS FOR THE FOLLOWING SLOPES:
2.5%-3% 100' INTERVALS
3%-5% 50' INTERVALS
5%-7% 25' INTERVALS
- ⑦ CRITICAL POINTS SHALL BE SECURED WITH PROPER STAPLE PATTERNS.



DITCH BLANKET STAPLE DETAIL

LEAD
EXPERT
OFFICE

MARNI KARNOWSKI
CHIEF ENVIRONMENTAL OFFICER
OFFICE OF
ENVIRONMENTAL STEWARDSHIP

PERMANENT EROSION CONTROL
REPP (BLANKET) STAPLE PATTERN FOR SLOPES

APPROVED: 01-08-2020
REVISED:

THOMAS STYRBICKI
STATE DESIGN ENGINEER

STANDARD
PLAN
5-297.404

3 OF 3



STANDARD PLAN

STATE PROJ. NO.

SHEET NO.

TRUNK HWY.

TOTAL SHEETS