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- GENERAL NOTES
1. TOPOGRAPHY BASED ON 2013 LIDAR SURVEY, SAN BERNARDINO COUNTY
 2. AERIAL IMAGERY SOURCE: NAIP, 2018.
 3. CONTRACTOR SHALL VERIFY UTILITY LOCATIONS PRIOR TO CONSTRUCTION.
 4. THE ENGINEER MAY MAKE MINOR CHANGES TO THE CONFIGURATION AND DESIGN GRADES OF ACCESS ROUTES AND PROJECT FEATURES IN THE FIELD.
 5. NO TREES ARE DESIGNATED FOR REMOVAL. IF FIELD CONDITIONS INDICATE THE NEED FOR TREE REMOVAL, PRIOR APPROVAL IS REQUIRED FROM THE DISTRICT.
 6. NO GRADING OR MATERIAL DELIVERY SHALL OCCUR PRIOR TO INSTALLATION OF APPROVED CONSTRUCTION BMPs.
 7. CONSTRUCTION OPERATIONS SHALL CONFORM TO THE APPROVED SWPPP AND PROJECT PERMITS.
 8. WORK WILL BE PERFORMED BETWEEN THE HOURS OF 8 AM TO 6 PM, MONDAY THROUGH FRIDAY, UNLESS OTHERWISE APPROVED.
 9. IN THE CASE WHERE PHASE 1 IS EXECUTED IN ISOLATION, EXCESS EXCAVATED MATERIAL WILL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF OFFSITE. IN THE CASE WHERE PHASE 1 AND PHASE 2 ARE EXECUTED JOINTLY, EXCESS MATERIAL WILL BE DISPOSED OF ENTIRELY ON SITE.
 10. LWM AND BOULDER MATERIALS WILL BE SUPPLIED BY THE OWNER AND STOCKPILED ON SITE NEAR STAGING AREA.



LEGEND	
EXISTING TREES	
EXISTING PAVED ROAD	
EXISTING GRAVEL ROAD	
EXISTING CONTOURS (MAJOR)	
EXISTING CONTOURS (MINOR)	
EXISTING FENCE	
EXISTING EDGE OF WATER (00/00/00)	
EXISTING BUILDINGS & STRUCTURES	
PROPOSED EARTHWORK	
CONSTRUCTION BASELINE	
PRESERVATION FENCE	
PRESERVATION FENCE WITH SILT BARRIER	
HORIZONTAL AND VERTICAL CONTROL POINT	
HORIZONTAL CONTROL POINT	
VERTICAL CONTROL POINT	

San Bernardino Valley Water Conservation District

CONSTRUCTION PLANS FOR

Plunge Creek Conservation Project

Phase 1 & 2

FEBRUARY 2020

PROJECT MANAGER

Erwin Fogerson
San Bernardino Valley Water Conservation District

APPROVED BY:  2/4/20 (date)

Erwin Fogerson, California Registered Professional Engineer #49060





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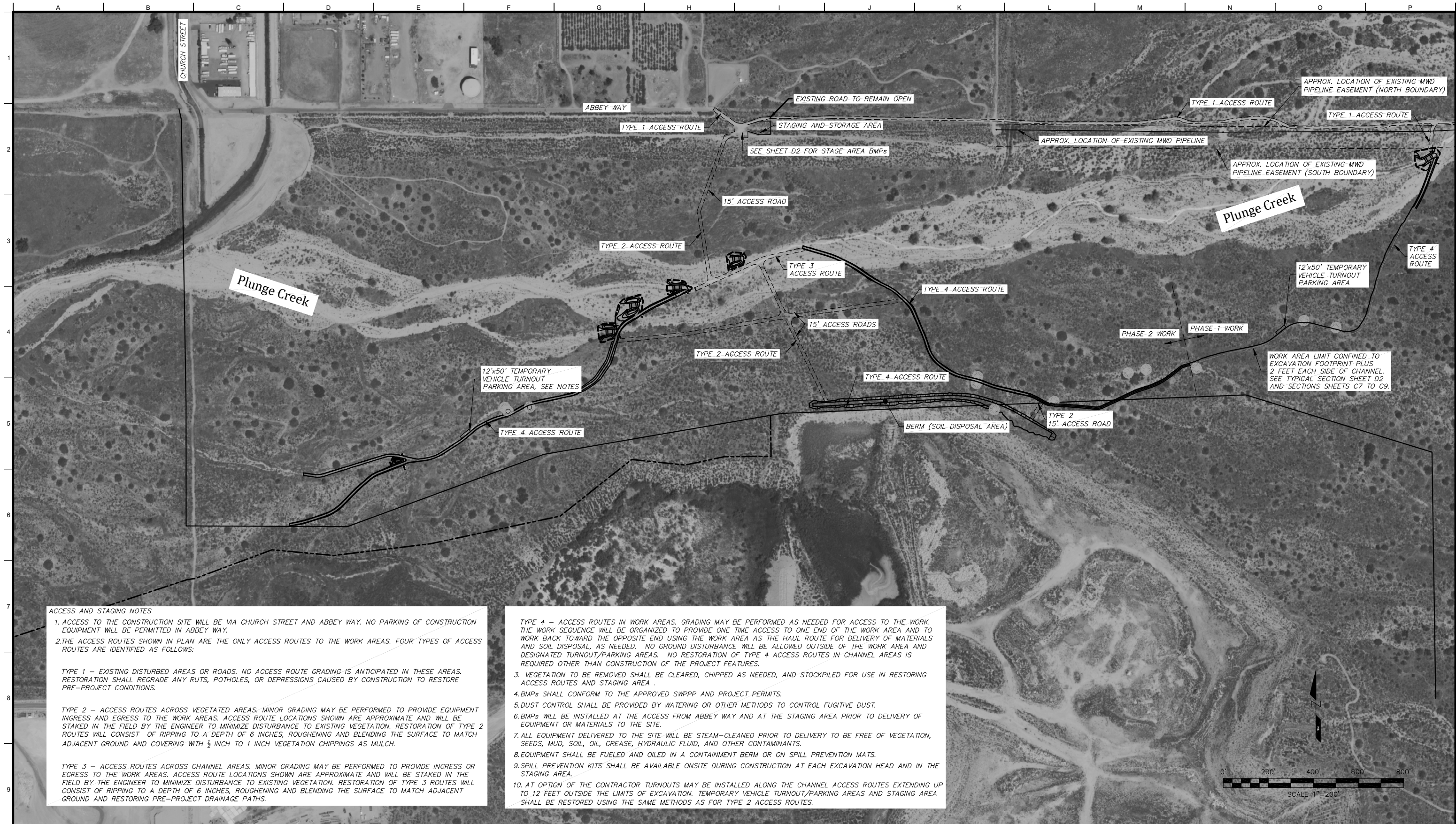
Edward E. Wallace
CALIFORNIA REGISTERED
PROFESSIONAL ENGINEER NO. #32301
northwest hydraulic consultants
3 FEBRUARY 2020 (date)



Drawing Name PLUNGE CREEK COVER		Date 3 February 2020 16:48	
Drawing Status Draft Bid Set		Designer lvs	Drafter lvs
		Checked eew	Job Number 6000208
		Sheet Number	

Sheet 1 of 17

T1



ACCESS AND STAGING NOTES

1. ACCESS TO THE CONSTRUCTION SITE WILL BE VIA CHURCH STREET AND ABBEY WAY. NO PARKING OF CONSTRUCTION EQUIPMENT WILL BE PERMITTED IN ABBEY WAY.

2. THE ACCESS ROUTES SHOWN IN PLAN ARE THE ONLY ACCESS ROUTES TO THE WORK AREAS. FOUR TYPES OF ACCESS ROUTES ARE IDENTIFIED AS FOLLOWS:

TYPE 1 – EXISTING DISTURBED AREAS OR ROADS. NO ACCESS ROUTE GRADING IS ANTICIPATED IN THESE AREAS. RESTORATION SHALL REGRADE ANY RUTS, POTHOLES, OR DEPRESSIONS CAUSED BY CONSTRUCTION TO RESTORE PRE-PROJECT CONDITIONS.

TYPE 2 – ACCESS ROUTES ACROSS VEGETATED AREAS. MINOR GRADING MAY BE PERFORMED TO PROVIDE EQUIPMENT INGRESS AND EGRESS TO THE WORK AREAS. ACCESS ROUTE LOCATIONS SHOWN ARE APPROXIMATE AND WILL BE STAKED IN THE FIELD BY THE ENGINEER TO MINIMIZE DISTURBANCE TO EXISTING VEGETATION. RESTORATION OF TYPE 2 ROUTES WILL CONSIST OF RIPPING TO A DEPTH OF 6 INCHES, ROUGHENING AND BLENDING THE SURFACE TO MATCH ADJACENT GROUND AND COVERING WITH 1/2 INCH TO 1 INCH VEGETATION CHIPPINGS AS MULCH.

TYPE 3 – ACCESS ROUTES ACROSS CHANNEL AREAS. MINOR GRADING MAY BE PERFORMED TO PROVIDE INGRESS OR EGRESS TO THE WORK AREAS. ACCESS ROUTE LOCATIONS SHOWN ARE APPROXIMATE AND WILL BE STAKED IN THE FIELD BY THE ENGINEER TO MINIMIZE DISTURBANCE TO EXISTING VEGETATION. RESTORATION OF TYPE 3 ROUTES WILL CONSIST OF RIPPING TO A DEPTH OF 6 INCHES, ROUGHENING AND BLENDING THE SURFACE TO MATCH ADJACENT GROUND AND RESTORING PRE-PROJECT DRAINAGE PATHS.

TYPE 4 – ACCESS ROUTES IN WORK AREAS. GRADING MAY BE PERFORMED AS NEEDED FOR ACCESS TO THE WORK. THE WORK SEQUENCE WILL BE ORGANIZED TO PROVIDE ONE TIME ACCESS TO ONE END OF THE WORK AREA AND TO WORK BACK TOWARD THE OPPOSITE END USING THE WORK AREA AS THE HAUL ROUTE FOR DELIVERY OF MATERIALS AND SOIL DISPOSAL, AS NEEDED. NO GROUND DISTURBANCE WILL BE ALLOWED OUTSIDE OF THE WORK AREA AND DESIGNATED TURNOUT/PARKING AREAS. NO RESTORATION OF TYPE 4 ACCESS ROUTES IN CHANNEL AREAS IS REQUIRED OTHER THAN CONSTRUCTION OF THE PROJECT FEATURES.

3. VEGETATION TO BE REMOVED SHALL BE CLEARED, CHIPPED AS NEEDED, AND STOCKPILED FOR USE IN RESTORING ACCESS ROUTES AND STAGING AREA.

4. BMPs SHALL CONFORM TO THE APPROVED SWPPP AND PROJECT PERMITS.

5. DUST CONTROL SHALL BE PROVIDED BY WATERING OR OTHER METHODS TO CONTROL FUGITIVE DUST.

6. BMPs WILL BE INSTALLED AT THE ACCESS FROM ABBEY WAY AND AT THE STAGING AREA PRIOR TO DELIVERY OF EQUIPMENT OR MATERIALS TO THE SITE.

7. ALL EQUIPMENT DELIVERED TO THE SITE WILL BE STEAM-CLEANED PRIOR TO DELIVERY TO BE FREE OF VEGETATION, SEEDS, MUD, SOIL, OIL, GREASE, HYDRAULIC FLUID, AND OTHER CONTAMINANTS.

8. EQUIPMENT SHALL BE FUELED AND OILED IN A CONTAINMENT BERM OR ON SPILL PREVENTION MATS.

9. SPILL PREVENTION KITS SHALL BE AVAILABLE ONSITE DURING CONSTRUCTION AT EACH EXCAVATION HEAD AND IN THE STAGING AREA.

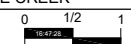
10. AT OPTION OF THE CONTRACTOR TURNOUTS MAY BE INSTALLED ALONG THE CHANNEL ACCESS ROUTES EXTENDING UP TO 12 FEET OUTSIDE THE LIMITS OF EXCAVATION. TEMPORARY VEHICLE TURNOUT/PARKING AREAS AND STAGING AREA SHALL BE RESTORED USING THE SAME METHODS AS FOR TYPE 2 ACCESS ROUTES.

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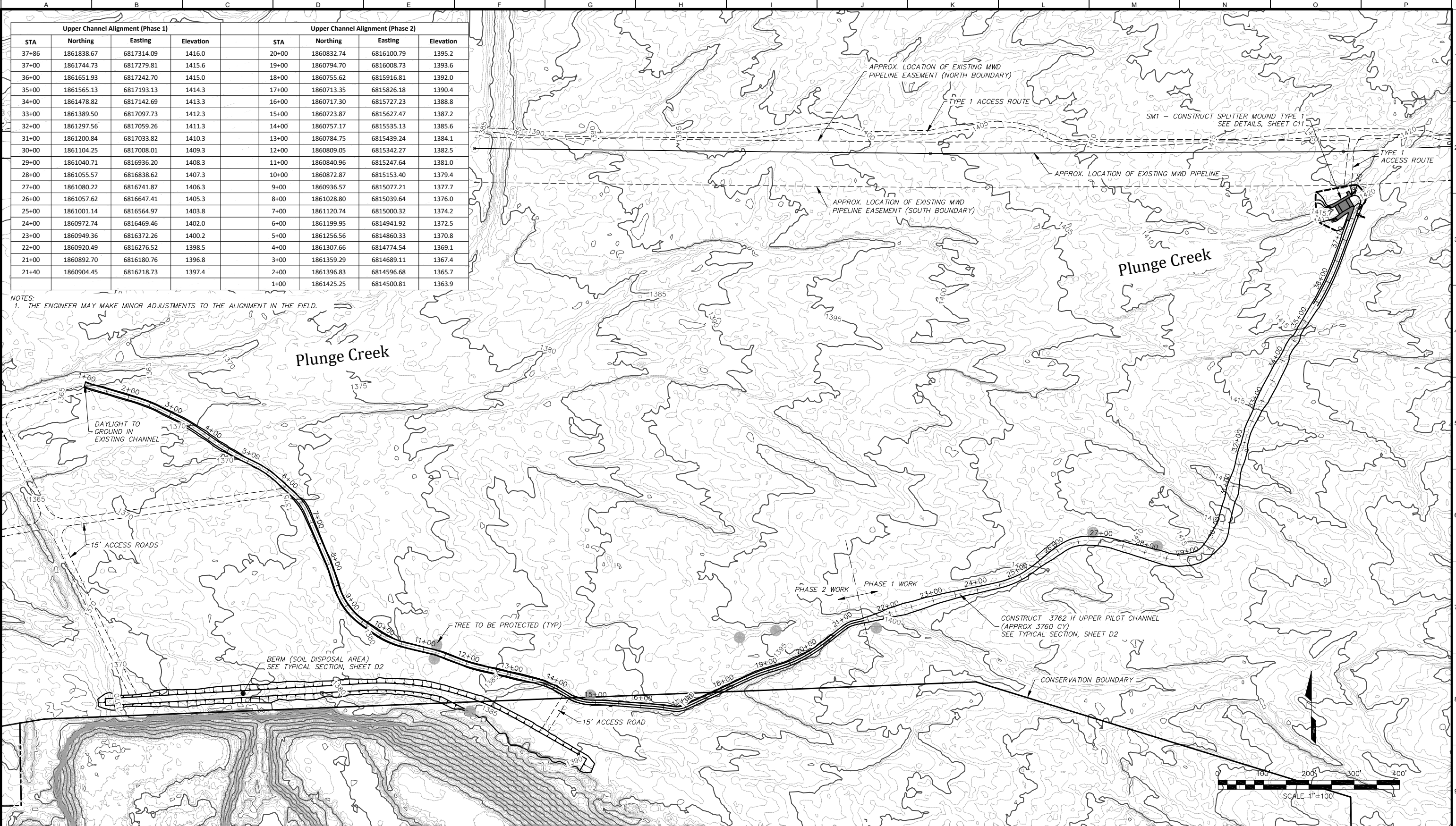
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			Plotted Scale	

Plunge Creek Conservation Project
Phase 1 & 2
Access & Staging Sheet

Job Number
6000208
Sheet Number
G1
Sheet 2 of 17



NOTES:
1. THE ENGINEER MAY MAKE MINOR ADJUSTMENTS TO THE ALIGNMENT IN THE FIELD.



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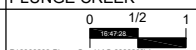


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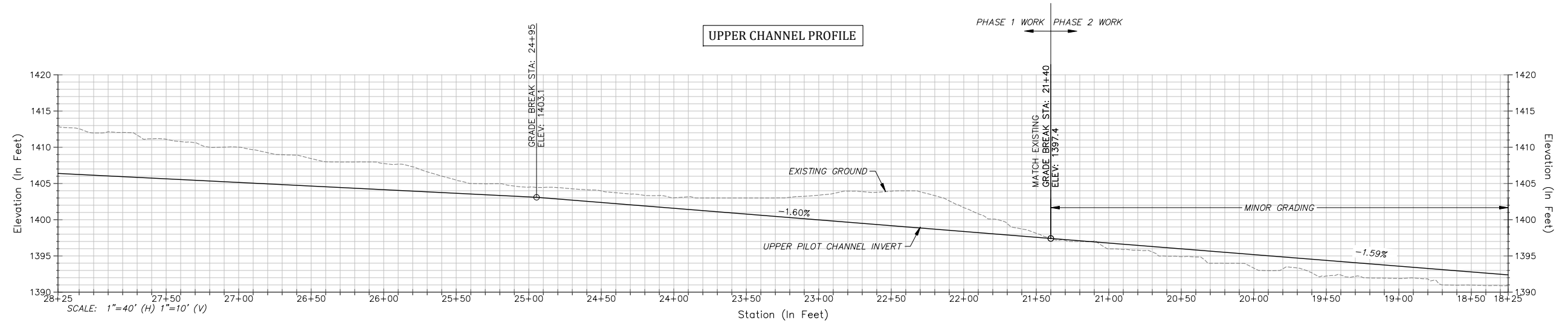
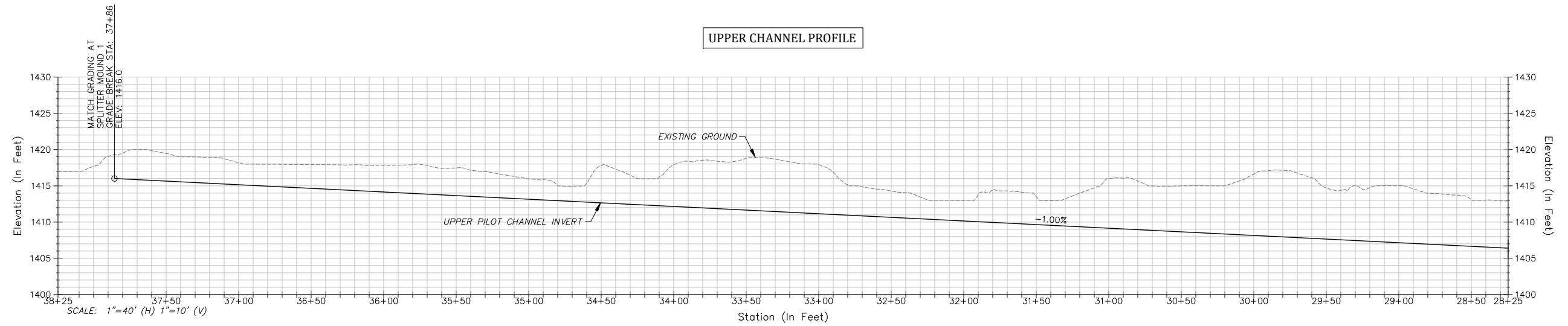
Plunge Creek Conservation Project
Phase 1 & 2

Upper Pilot Channel Plan Sheet

Job Number
6000208

Sheet Number
C1

Sheet 3 of 17



NOTE:
WHERE MINOR GRADING IS INDICATED, CUTS TO DESIGN
GRADE ARE EXPECTED TO BE ONE FOOT OR LESS AND A
UNIFORM SIDE SLOPE IS NOT REQUIRED. NO FILL IS
REQUIRED WHERE EXISTING GROUND IS LOWER THAN
DESIGN GRADE. ENGINEER MAY MAKE MINOR
ADJUSTMENTS IN LOCATION OF GRADING IN FIELD TO
PROVIDE POSITIVE DRAINAGE.



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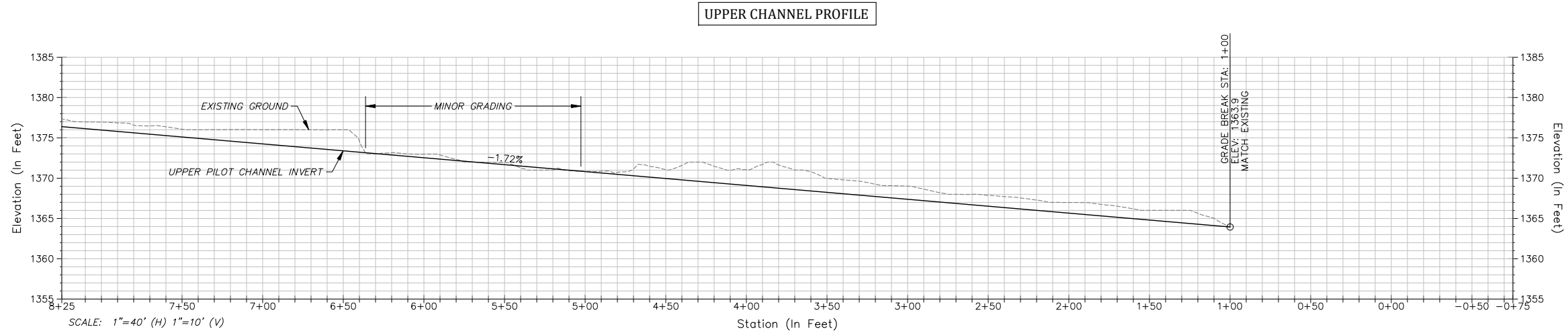
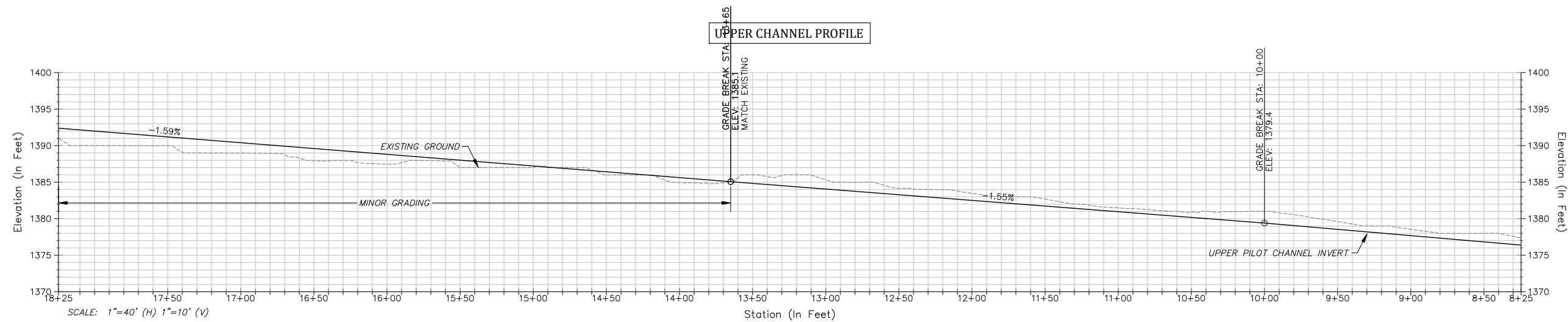
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Plunge Creek Conservation Project
Phase 1 & 2
Upper Pilot Channel Profile Sheet

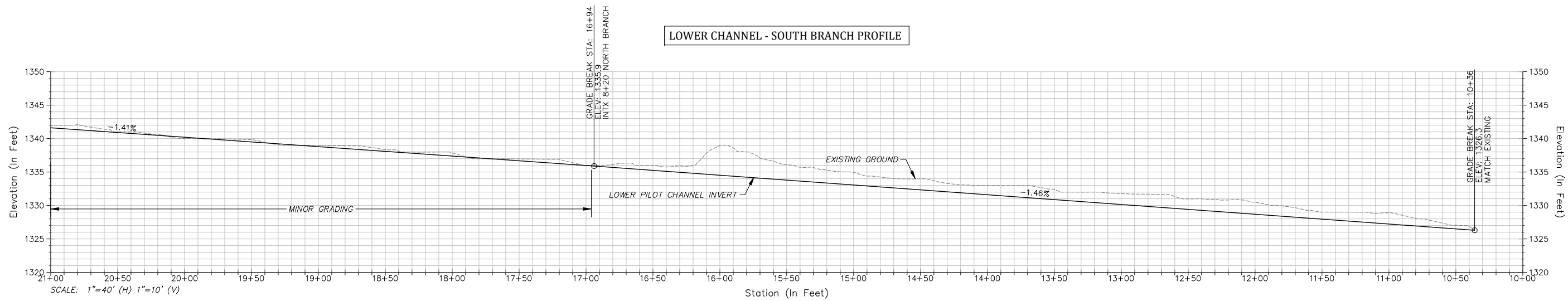
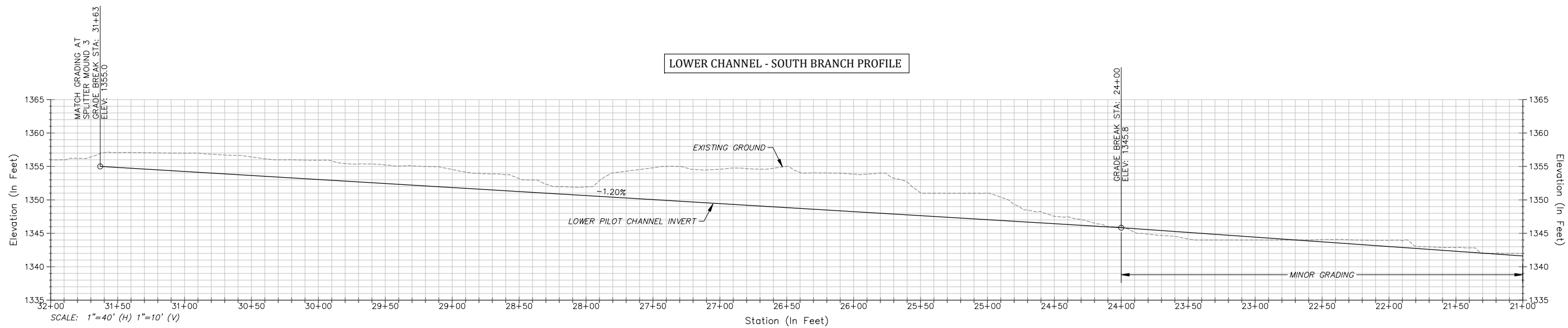
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Sheet Number

C3

Sheet 5 of 17



NOTE:
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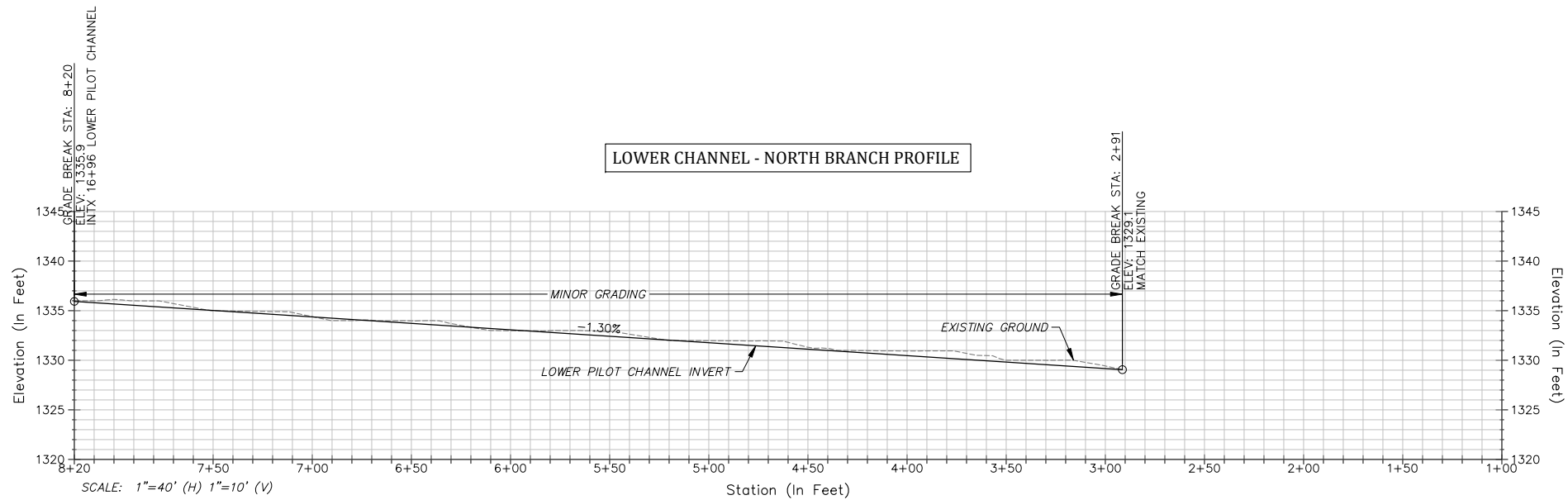
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Plunge Creek Conservation Project
Phase 2
Lower Pilot Channel Profile Sheet

Job Number
6000208
Sheet Number
C5
Sheet 7 of 17



NOTE:
WHERE MINOR GRADING IS INDICATED, CUTS TO DESIGN GRADE ARE EXPECTED TO BE ONE FOOT OR LESS AND A UNIFORM SIDE SLOPE IS NOT REQUIRED. NO FILL IS REQUIRED WHERE EXISTING GROUND IS LOWER THAN DESIGN GRADE. ENGINEER MAY MAKE MINOR ADJUSTMENTS IN LOCATION OF GRADING IN FIELD TO PROVIDE POSITIVE DRAINAGE.



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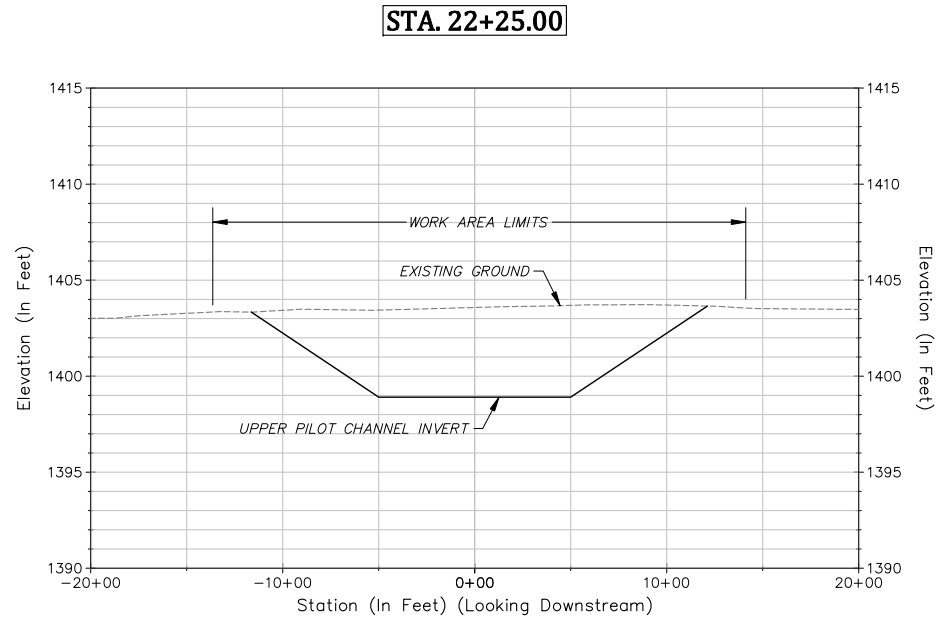
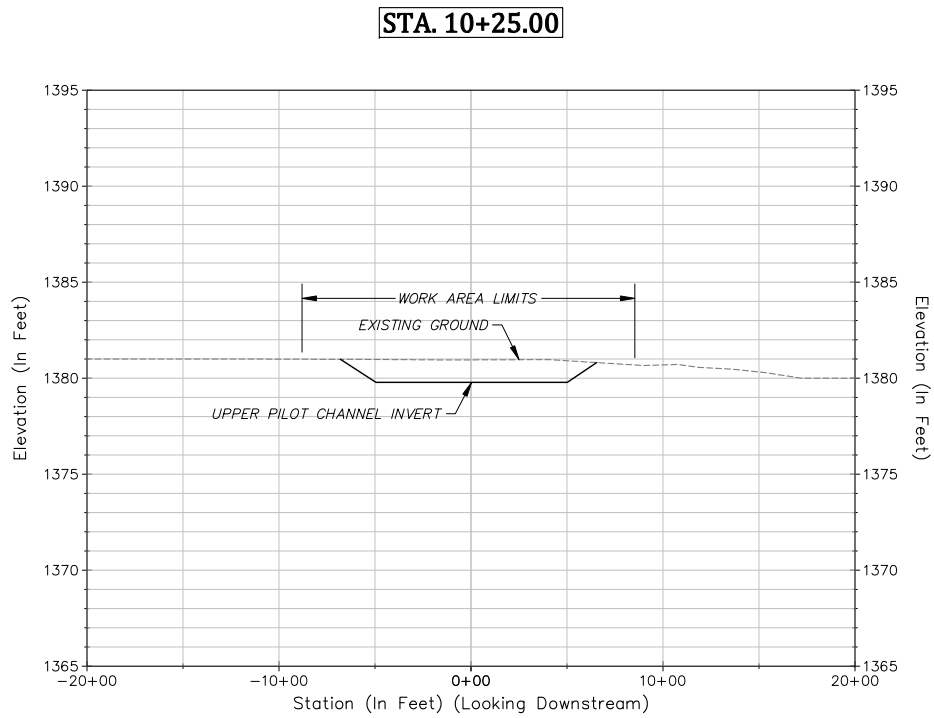
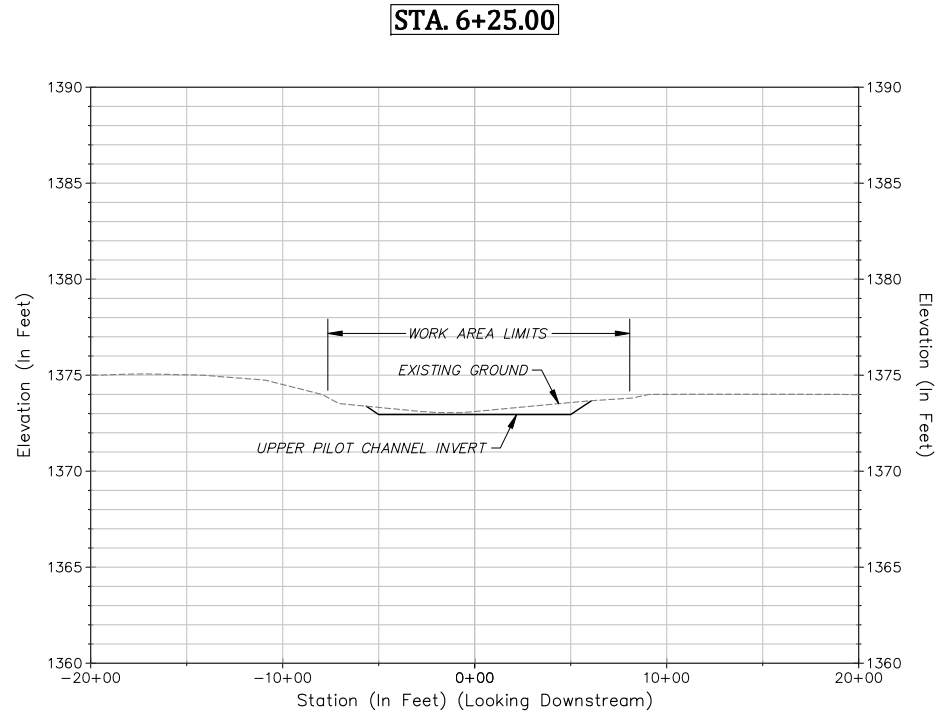
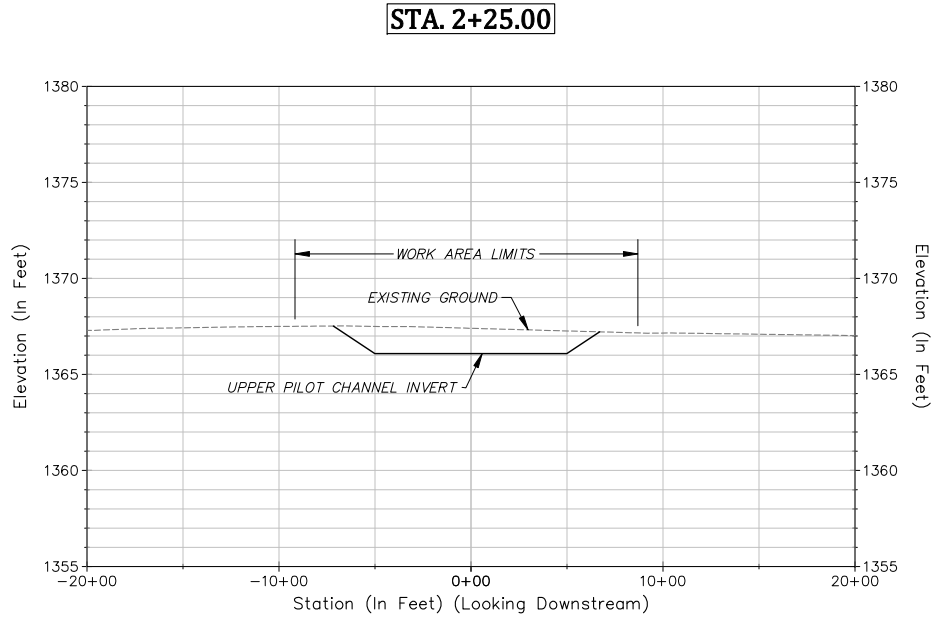


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Plunge Creek Conservation Project
Phase 2
Lower Pilot Channel - North Branch
Profile Sheet

Job Number
6000208
Sheet Number
C6
Sheet 7 of 17

NOTE:
1. WORK AREA IS LIMITED TO THE PILOT CHANNEL WIDTH PLUS 2.0' ON EITHER SIDE. ACCESS ROUTES WILL BE LIMITED TO THE WORK AREA LIMITS.



SCALE: 1"=5' (H/V)



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Plunge Creek Conservation Project
Phase 1

Upper Pilot Channel Cross Sections Sheet

Job Number
6000208

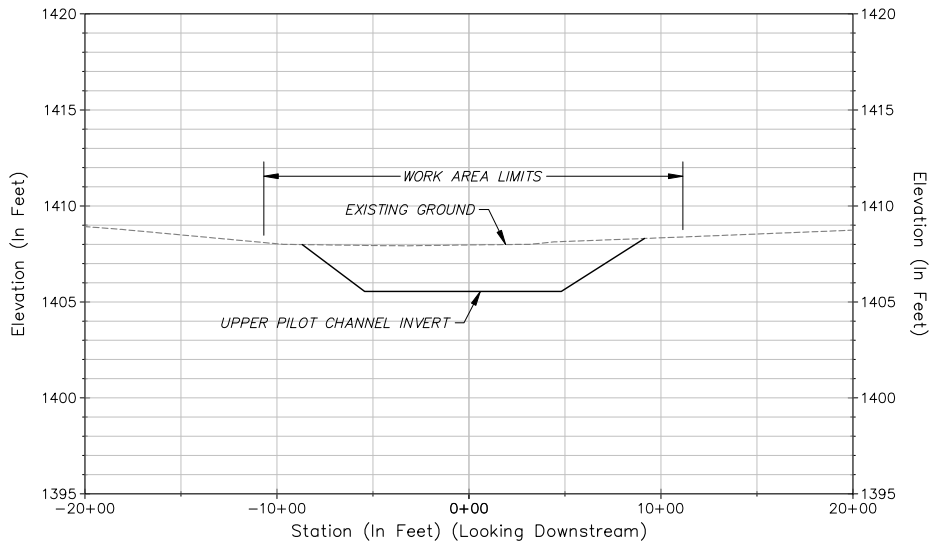
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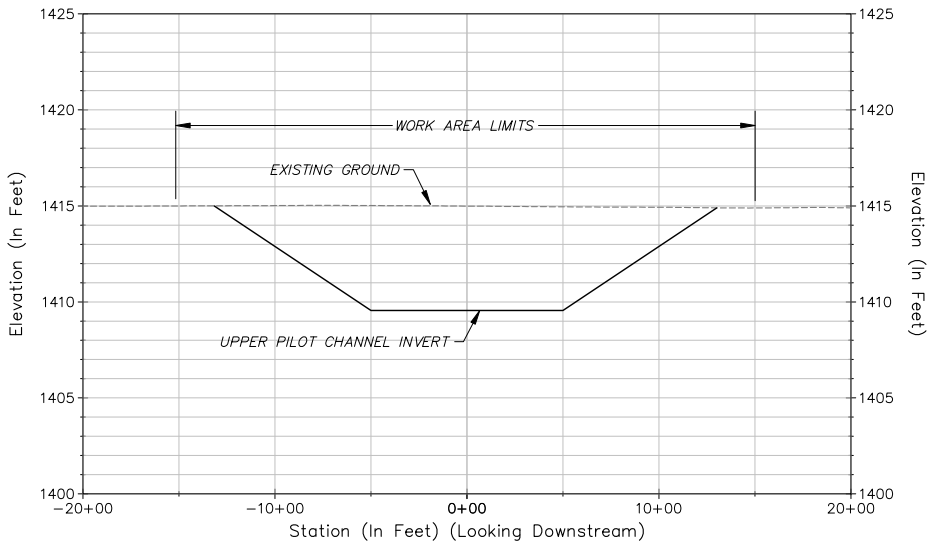
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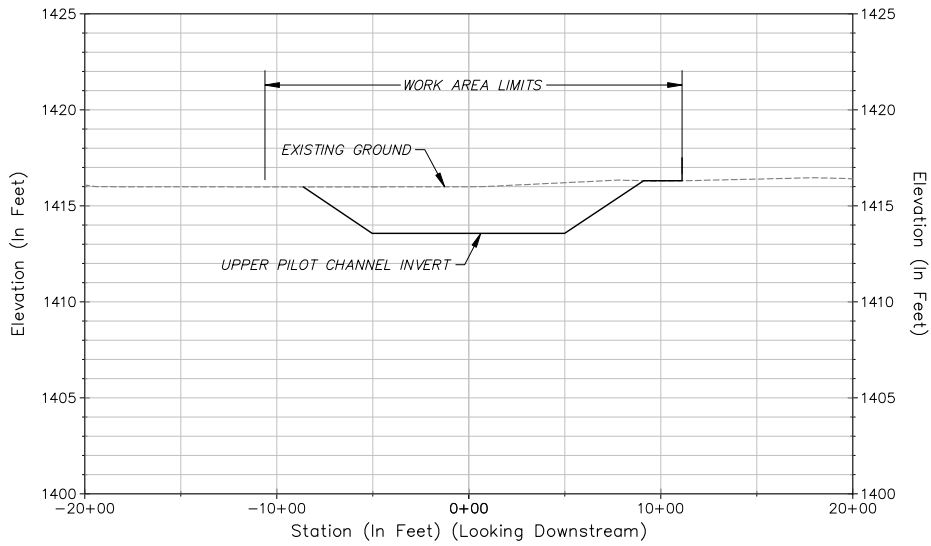
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STA. 30+25.00



STA. 34+25.00



SCALE: 1"=5' (H/V)



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Plunge Creek Conservation Project
Phase 2

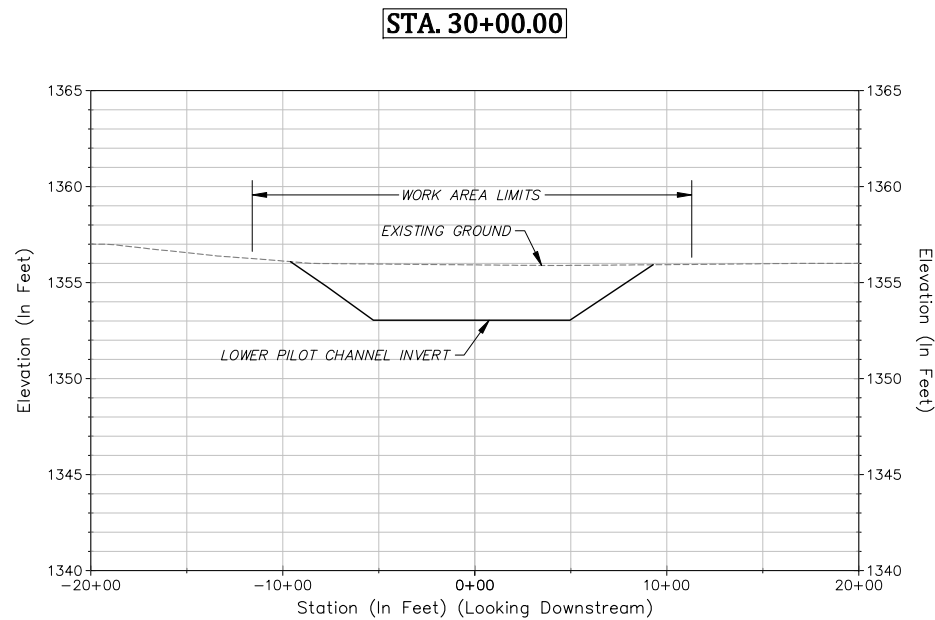
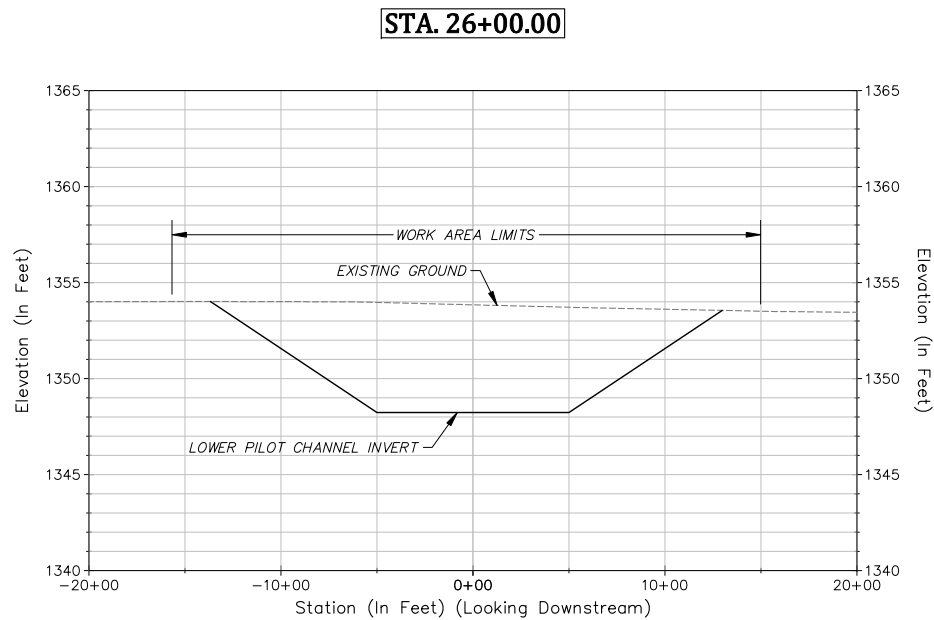
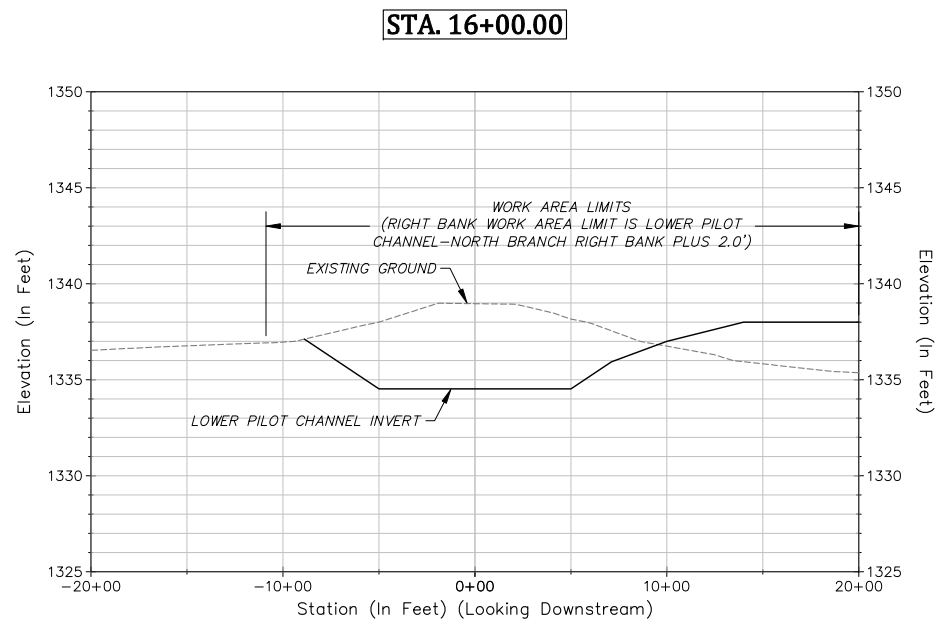
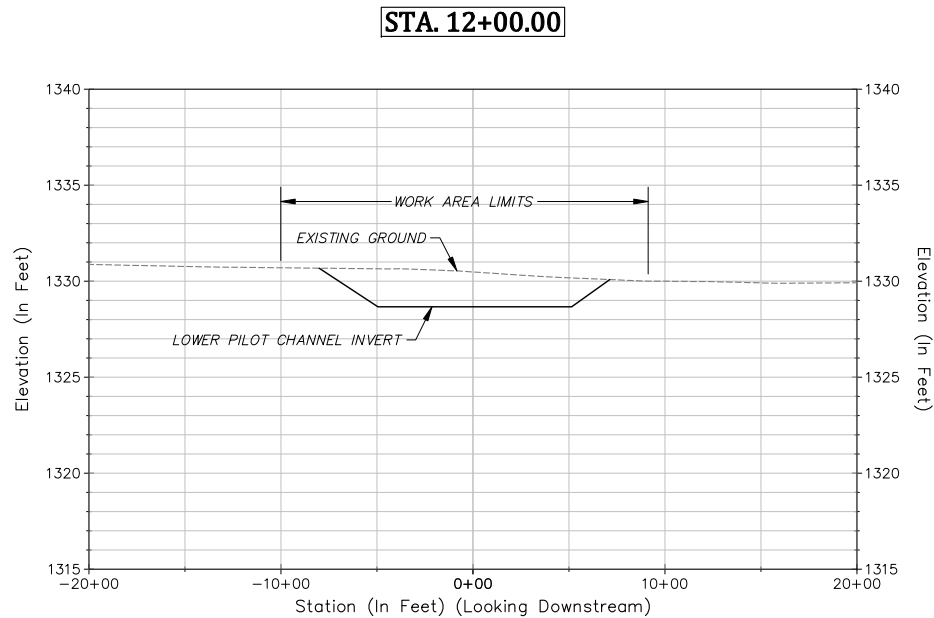
Upper Channel Cross Sections Sheet

Job Number
6000208

Sheet Number
C8

Sheet 10 of 17

NOTE:
1. WORK AREA IS LIMITED TO THE PILOT CHANNEL WIDTH PLUS 2.0' ON EITHER SIDE. ACCESS ROUTES WILL BE LIMITED TO THE WORK AREA LIMITS.



SCALE: 1"=5' (H/V)



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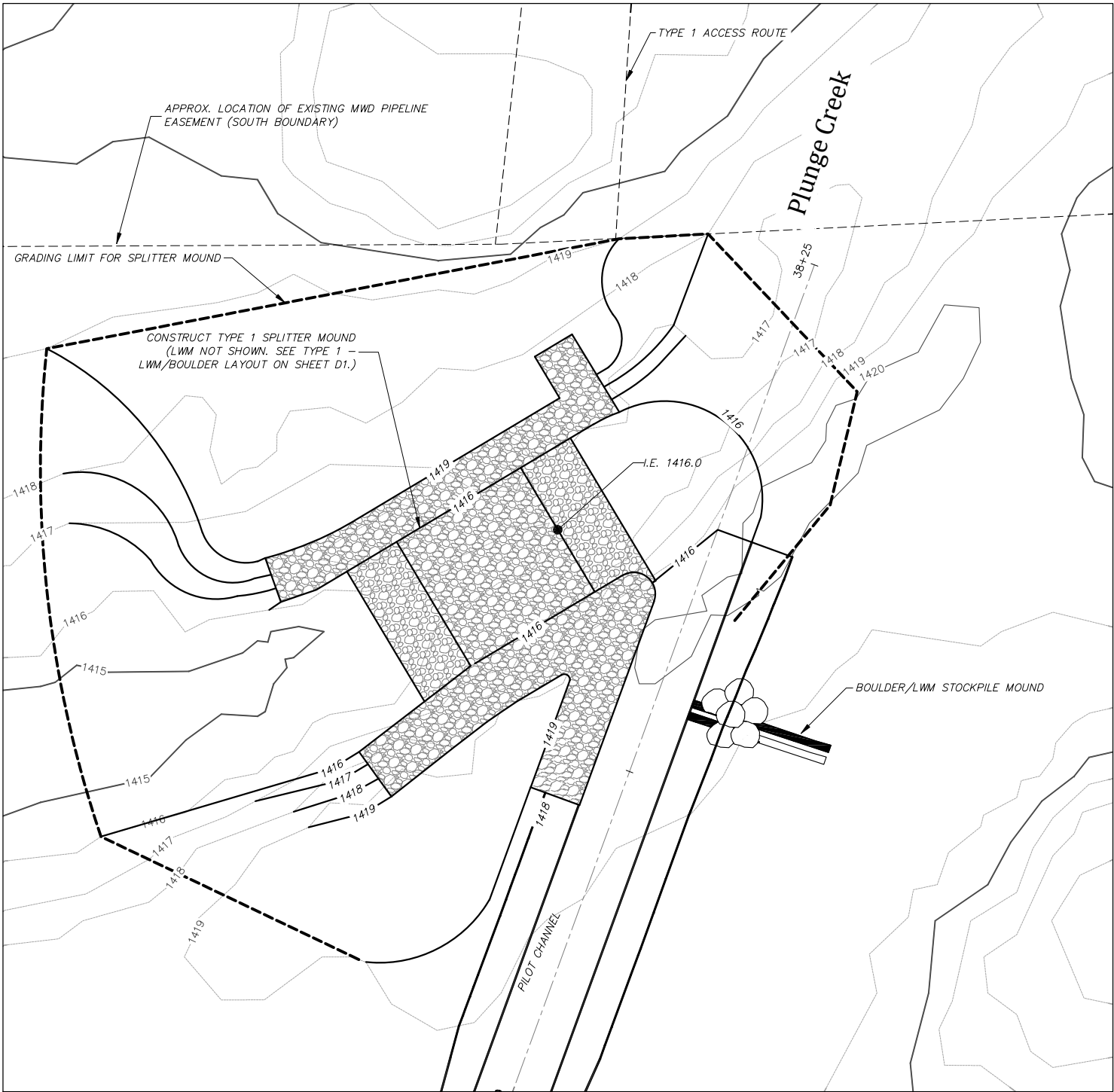
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Plunge Creek Conservation Project
Phase 2
Lower Pilot Channel Cross Sections Sheet

Job Number
6000208
Sheet Number

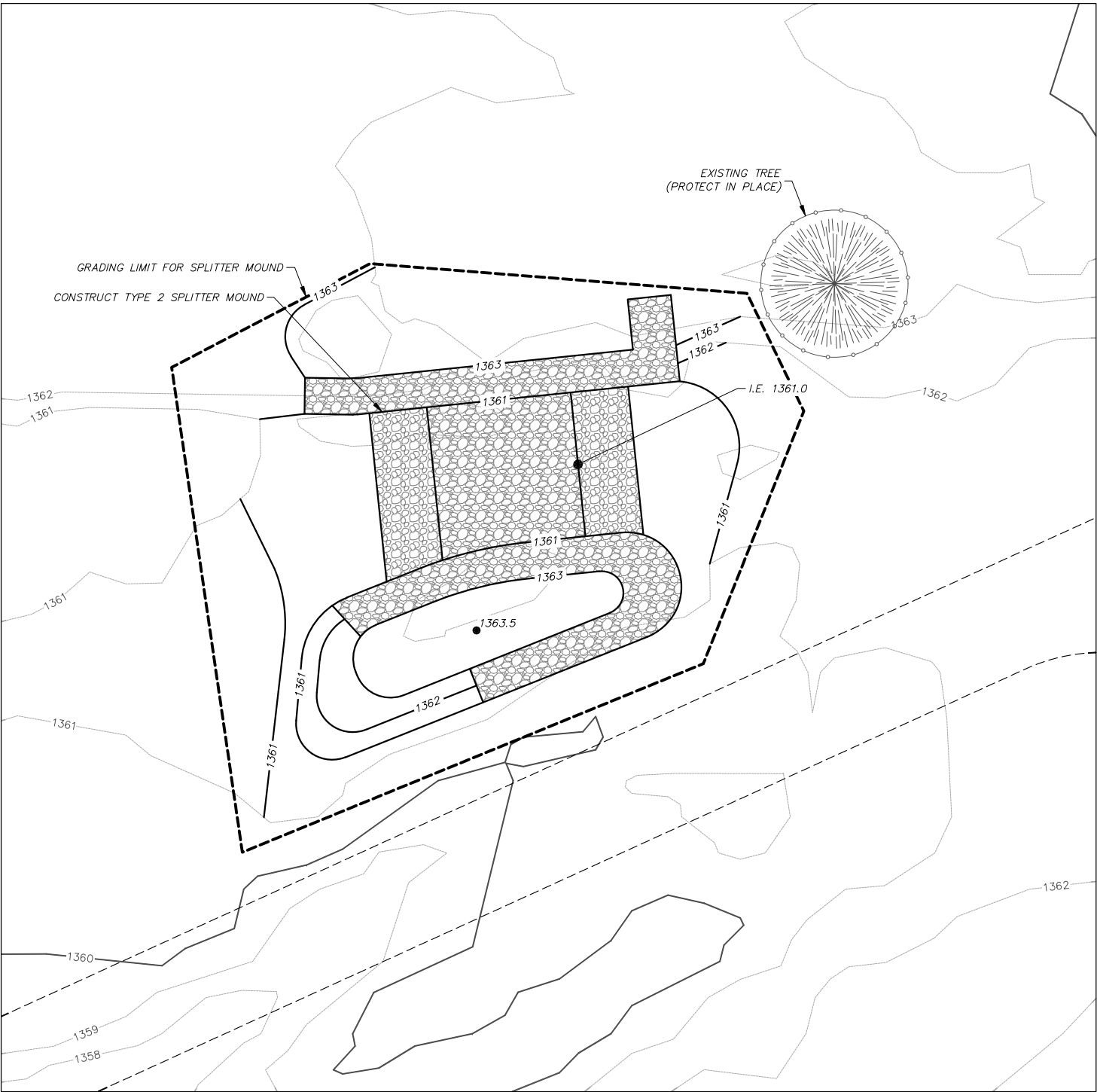
C9

Sheet 11 of 17



SPLITTER MOUND - #1 (PHASE 1)
Scale: 1"=10'

NOTE:
LWM NOT SHOWN FOR CLARITY, SHEET SHEET D1 FOR CONSTRUCTION DETAILS.



SPLITTER MOUND - #2 (PHASE 2)
Scale: 1"=10'

NOTE:
FOR CONSTRUCTION DETAILS OF SPLITTER MOUNDS,
SEE SPLITTER MOUND GEOMETRY, LWM/BOULDER
LAYOUT, AND PLAN AND SECTION DETAILS,
SHEETS D1 AND D2



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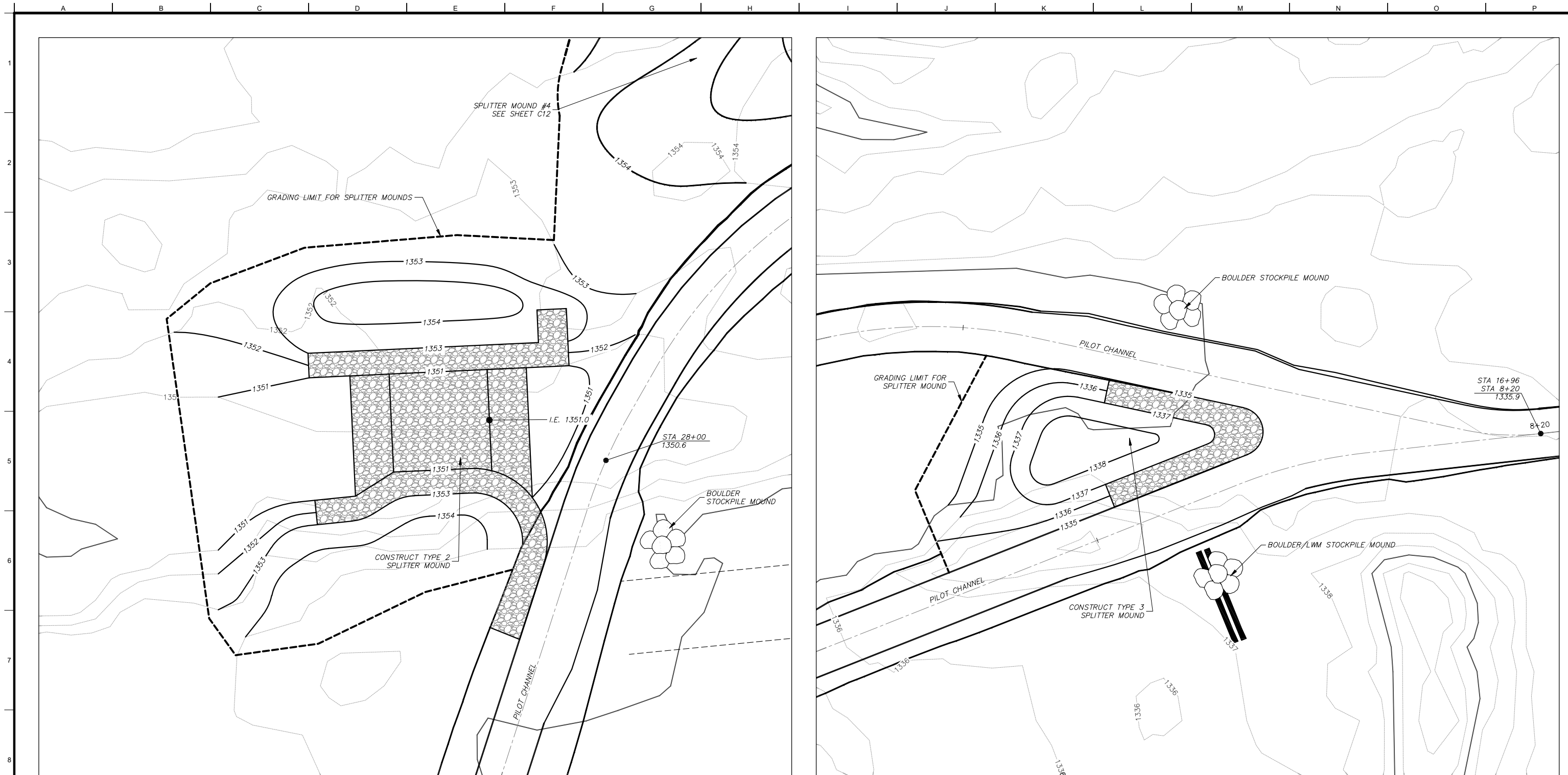
Plunge Creek Conservation Project
Phase 1 & 2
Splitter Mounds #1 & #2
Details

Job Number
6000208

Sheet Number

C10

Sheet 12 of 17



SPLITTER MOUND - #5
Scale: 1"=10'

SPLITTER MOUND - #6
Scale: 1"=10'



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Revisions			Drawing Information	
No.	Date	Description	Date	
			3 February 2020 (04:47)	
			Status	100% PLAN SET
			Designer	tvb
			Drafter	tvb
			Checked	eew
			File Name	PLUNGE CREEK
			Plotted Scale	0 1/2 1

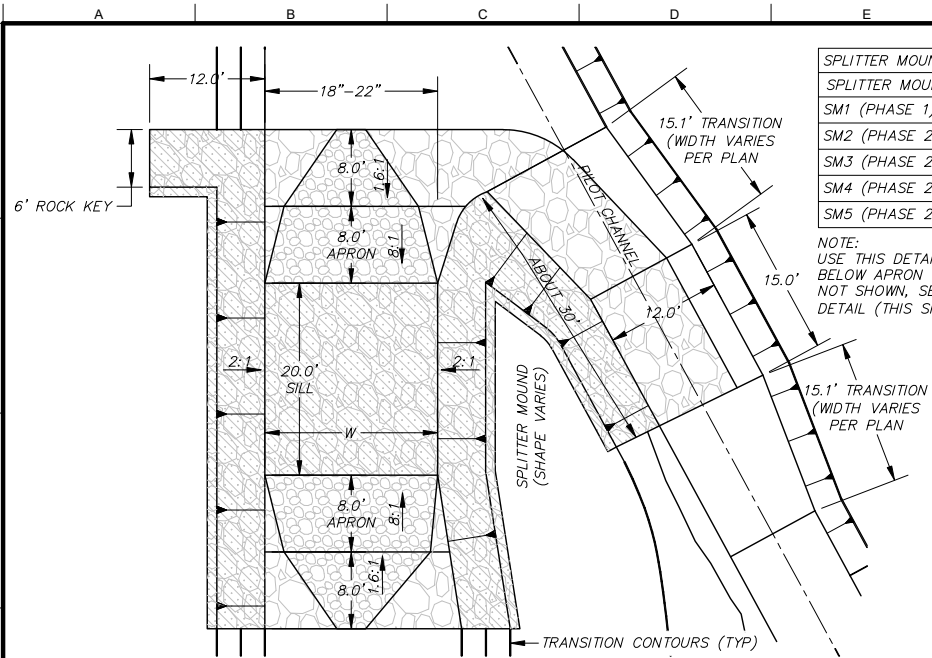
Plunge Creek Conservation Project
Phase 2
Splitter Mounds #5 & #6
Details

Job Number
6000208

Sheet Number

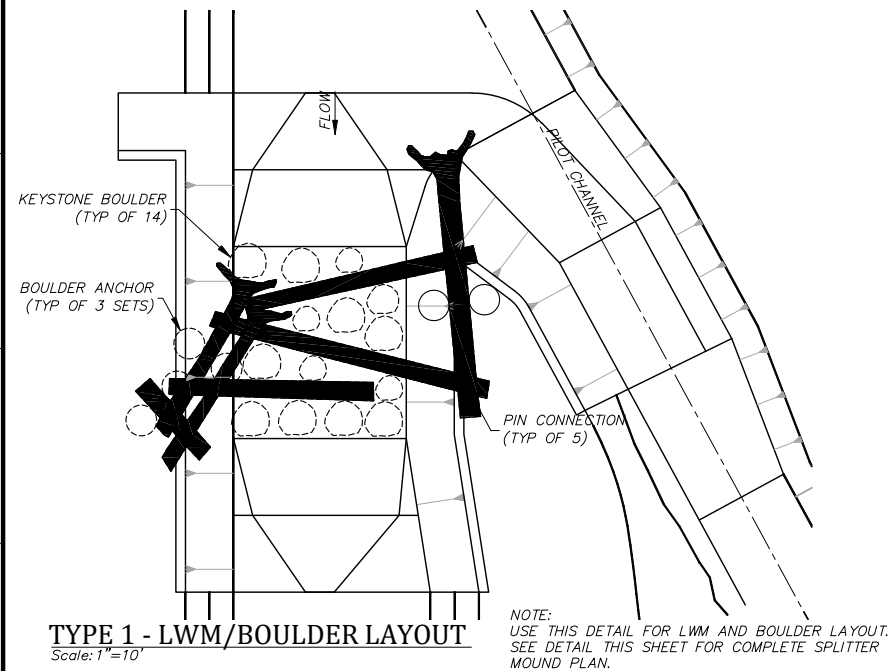
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TYPE 1 & 2 - TYPICAL SPLITTER MOUND GEOMETRY
Scale: 1"=10'

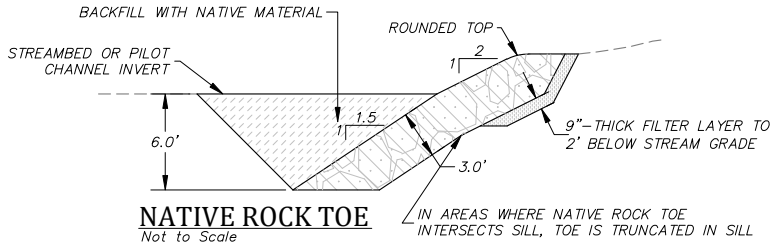
SPLITTER MOUND	NATIVE ROCK (CY)	COARSE STREAMBED FILL (CY)	FILTER MATERIAL (CY)
SM1 (PHASE 1)	184	65	19
SM2 (PHASE 2)	183	60	23
SM3 (PHASE 2)	174	54	23
SM4 (PHASE 2)	206	70	27
SM5 (PHASE 2)	164	60	24



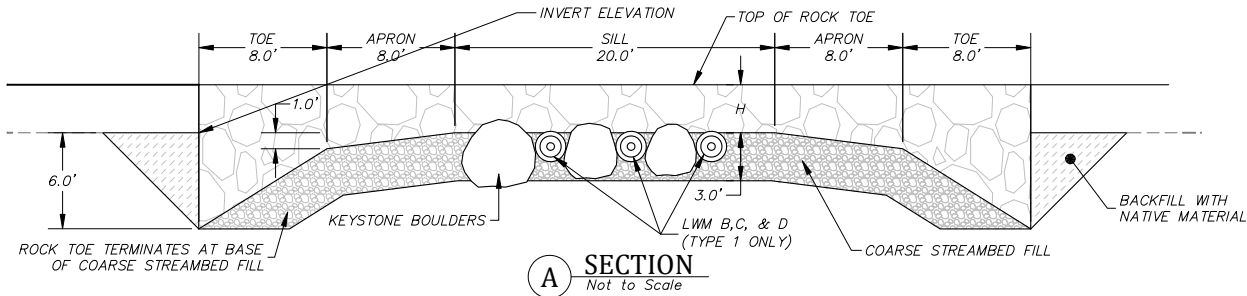
TYPE 1 - LWM/BOULDER LAYOUT
Scale: 1"=10'

SPLITTER MOUND W & H DIMENSIONS		
SPLITTER MOUND	W, FEET	H, FEET
SM1 (PHASE 1)	20	3
SM2 (PHASE 2)	20	2
SM3 (PHASE 2)	18	2
SM4 (PHASE 2)	22	2
SM5 (PHASE 2)	20	2

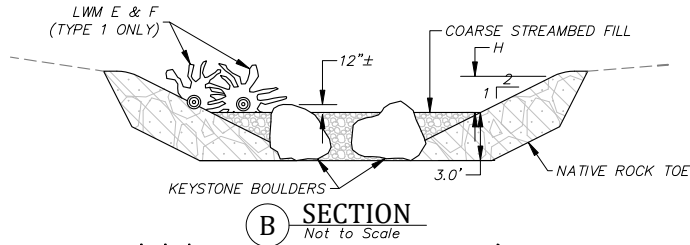
NOTE: USE THIS DETAIL FOR TYPICAL DIMENSIONS. ROCK BELOW APRON GRADES NOT SHOWN. LWM FOR TYPE 1 NOT SHOWN. SEE LWM LAYOUT AND SPLITTER MOUND DETAIL (THIS SHEET).



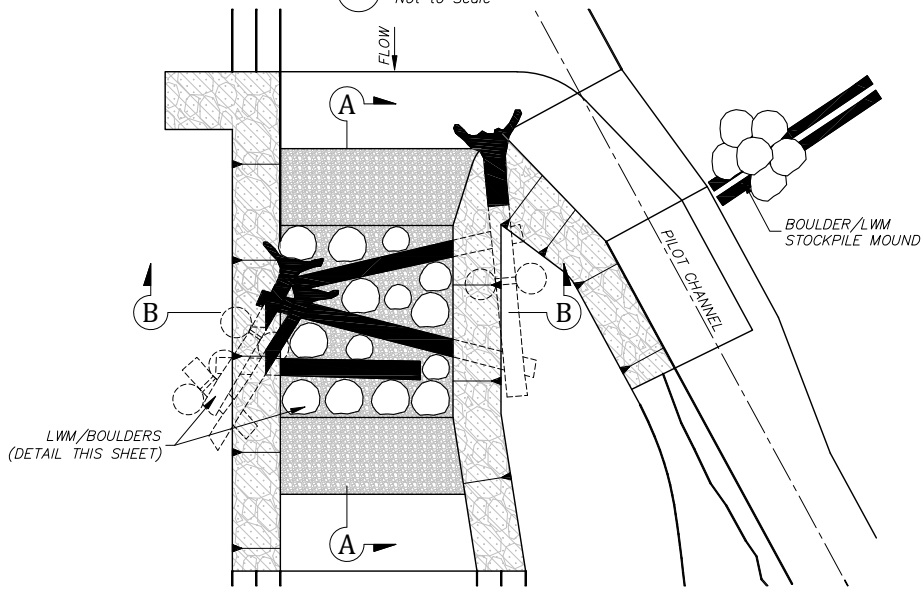
NATIVE ROCK TOE
Not to Scale



SECTION A
Not to Scale



SECTION B
Not to Scale



TYPE 1 - SPLITTER MOUND PLAN
Scale: 1"=10'

SPLITTER MOUND CONSTRUCTION NOTES

1. TYPE 1 AND 2 MOUNDS ARE SIMILAR IN GEOMETRY. ONLY TYPE 1 MOUNDS INCLUDE LWM.
2. KEYSTONE BOULDERS TO BE LOCAL PIT RUN OR SALVAGE NATURAL BOULDER MATERIAL BETWEEN 36 INCHES AND 48 INCHES IN SIZE (1 TO 3 TONS). KEYSTONE BOULDERS WILL BE SUPPLIED BY THE OWNER.
3. COARSE STREAMBED FILL MATERIAL TO BE A MIXTURE OF LOCAL PIT RUN OR SALVAGED MATERIAL, ROUNDED OR SUB-ROUNDED IN SHAPE, CONFORMING TO THE GRADATION BELOW:

COARSE STREAMBED FILL		
ROCK SIZE, FEET	MAX	MIN
2.0	100	85
1.5	85	60
1.0	50	35
0.5	30	20

VOIDS SHALL BE ENTIRELY FILLED WITH A MIXTURE OF NATIVE SAND AND GRAVEL.

4. COARSE STREAMBED MATERIAL TO BE SALVAGED ON SITE BY THE CONTRACTOR IN AREAS OF EXCAVATION

5. NATIVE ROCK TOE MATERIAL TO BE A MIXTURE OF LOCAL PIT RUN OR SALVAGE MATERIAL, CONFORMING TO THE GRADATION BELOW:

NATIVE ROCK TOE		
	% PASSING	
ROCK SIZE, FEET	MAX	MIN
2.5	100	100
2.0	100	75
1.5	60	30
1.25	30	15
1.0	15	0

VOIDS SHALL BE ENTIRELY FILLED WITH A MIXTURE OF NATIVE SAND AND GRAVEL.

6. NATIVE ROCK TOE MATERIALS TO BE SUPPLIED BY THE OWNER.

7. FILTER MATERIAL FOR NATIVE ROCK TOE TO BE SCREENED SALVAGE OR IMPORT MATERIAL CONFORMING TO THE GRADATION BELOW:

FILTER LAYER FOR NATIVE ROCK TOE		
	% PASSING	
PARTICLE SIZE, IN	MAX	MIN
6	100	100
3	85	50
0.75	30	15

FILTER LAYER MATERIALS TO BE SUPPLIED BY THE CONTRACTOR AND MAY BE SALVAGED ON SITE IN AREAS OF EXCAVATION

8. LARGE WOODY MATERIAL TO BE LOG AND TREE ROOT WAD/TRUNK MATERIAL OF DECAY RESISTANT SPECIES. LOGS TO HAVE DIAMETERS BETWEEN 12 AND 18 INCHES, AND ROOT WADS TO HAVE AN OVERALL BREADTH NOT LESS THAN 4 FEET. LWM LENGTHS:

LWM LENGTHS	
LOG ID	FEET
A	30
B	28
C	30
D	21
E	19
F	18
G	10

9. LWM WILL BE STOCKPILED BY THE OWNER FOR SELECTION AND TRIMMING TO LENGTH BY THE CONTRACTOR.

10. SPLITTER MOUND DIMENSIONS AND CONFIGURATIONS MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER TO FIT LOCAL TOPOGRAPHY AND FIELD CONDITIONS AT THE TIME OF CONSTRUCTION.

11. BOULDER/LWM STOCKPILE MOUND WILL CONSIST OF 2 LWM PIECES SIMILAR IN SIZE TO LOG IDs E AND F, AND 10 KEYSTONE BOULDERS. LWM AND BOULDERS TO BE PLACED WITH BOULDERS ON TOP OF LWM TO ANCHOR IT IN PLACE. STOCKPILE MOUNDS AT TYPE 2 SPLITTER MOUNDS TO INCLUDE BOULDERS ONLY. BOULDER STOCKPILE TO HAVE APPROXIMATE AREA OF 60 SF.

12. BOULDER PLACEMENT IN TYPE 2 SILL SHALL BE IN A STAGGERED PATTERN WITH A MINIMUM OF 16 BOULDERS PER SILL.

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NOTES:
1. EACH BOULDER ANCHOR CONSISTS OF TWO
2. BOULDER ANCHORS SHALL BE INSTALLED BY
EXCAVATING SUFFICIENT SPACE BELOW THE LOG
3. TO PLACE THE LOG AND HANG ON IT TO
TENSION CABLES.
4. ANCHORS ASSEMBLED IN PLACE SHALL BE ALLOWED
TO CURE AND THEN REPOSITIONED TO PLACE
TENSION ON CABLES AND WEIGHT ON LOG.

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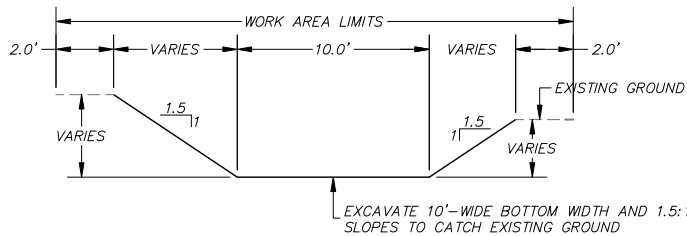
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REGISTERED PROFESSIONAL ENGINEER
EDWARD E. WALLACE
No. 32301
02/03/2020
Exp: 12/31/20
CIVIL
STATE OF CALIFORNIA

Revisions			Drawing Information	
No.	Date	Description	Date	3 February 2020 (04:47)
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			Checked	eew
			File Name	PLUNGE CREEK DETAILS
			Plotted Scale	0 1/2 1 1642.00 P:\6000208\PlungeCreek\AC\6000208.dwg

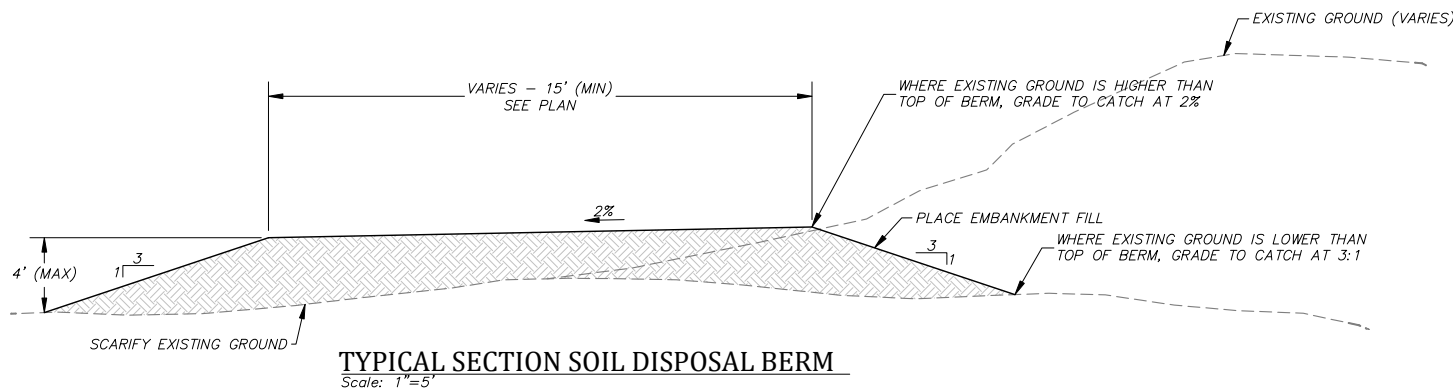
Plunge Creek Conservation Project
Phase 1 & 2
Details Sheet

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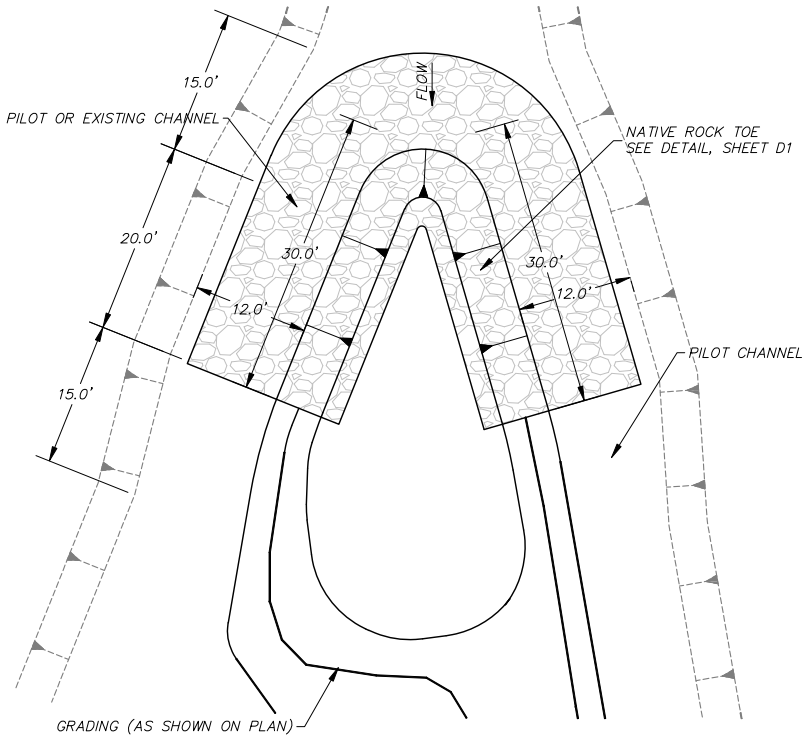
TYPICAL PILOT CHANNEL CROSS SECTION
Scale: 1"=5'

- PILOT CHANNEL CONSTRUCTION NOTES**
1. EXISTING VEGETATION TO BE REMOVED PRIOR TO EXCAVATION. VEGETATION TO BE CHIPPED AND STOCKPILED FOR USE IN RESTORING ACCESS ROADS, TURNOUTS AND STAGING AREA..
 2. SIDE SLOPES TO BE APPROXIMATELY 1.5:1. SLOPES STEEPER THAN 1.5:1 BUT NO STEEPER THAN 1:1 MAY BE USED WHERE CUT DEPTH IS LESS THAN 3 FEET AND CUT SLOPE IS STABLE.
 3. WHERE MINOR EXCAVATION IS SHOWN IN PROFILE, CUT DEPTHS ARE GENERALLY LESS THAN ONE FOOT AND SIDES DO NOT REQUIRE TRIMMING TO A PARTICULAR SLOPE. NO FILL IS REQUIRED WHERE DESIGN PROFILE IS ABOVE EXISTING GRADE. THE ENGINEER MAY MAKE MINOR CHANGES IN ALIGNMENT TO AVOID VEGETATION OR MINIMIZE CUT.
- BERM CONSTRUCTION NOTES**
1. EXISTING VEGETATION TO BE CLEARED PRIOR TO PLACEMENT OF FILL. VEGETATION SHALL BE CHIPPED AND APPLIED TO BERM 1/2 INCH TO 1 INCH THICK AS MULCH AFTER COMPLETION OF GRADING.
 2. EMBANKMENT FILL TO BE EXCAVATED NATIVE MATERIAL, PLACED IN LIFTS NOT TO EXCEED 12 INCHES LOOSE THICKNESS, AND COMPACTED TO A RELATIVE COMPACTION NOT LESS THAN 85% PER ASTM D1557.

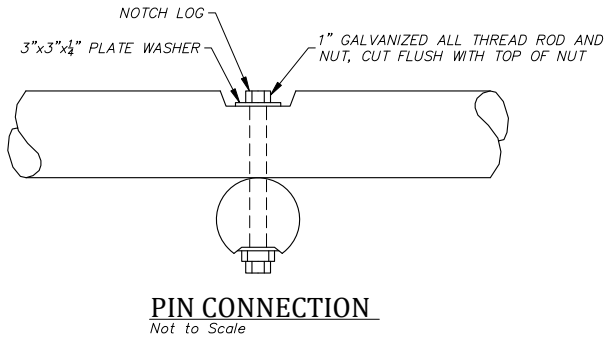
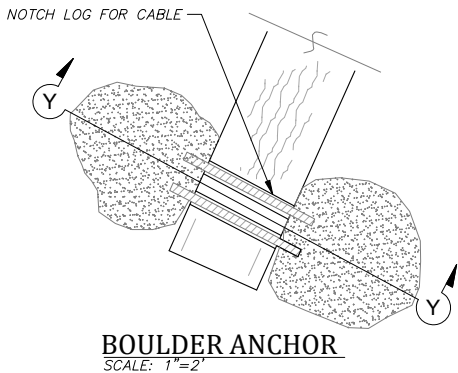
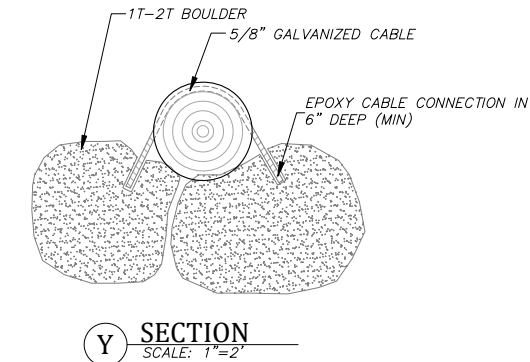


TYPICAL SECTION SOIL DISPOSAL BERM
Scale: 1"=5'

SPLITTER MOUND	NATIVE ROCK (CY)	COARSE STREAMBED FILL (CY)	FILTER MATERIAL (CY)
SM6 (PHASE 2)	109	14	10



TYPE 3 - TYPICAL SPLITTER MOUND GEOMETRY
Scale: 1"=10'



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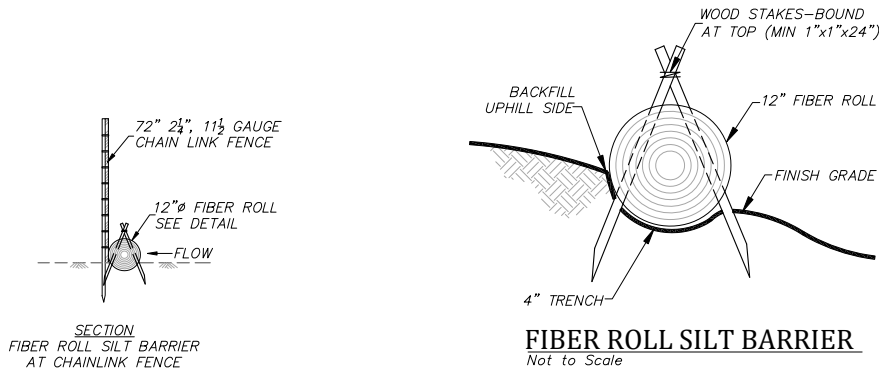
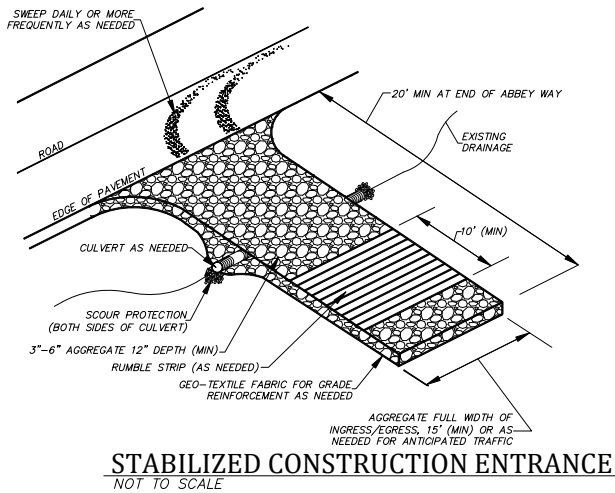
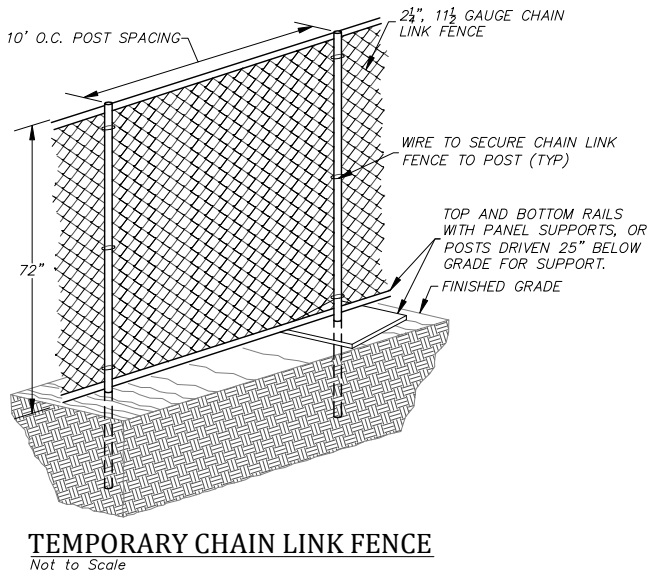
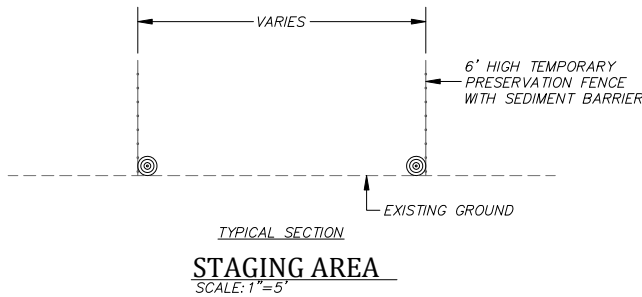


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Plotted Scale	0 1/2 1

Plunge Creek Conservation Project
Phase 1 & 2
Details Sheet

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TEMPORARY CHAINLINK FENCE WITH SEDIMENT BARRIER

Not to Scale

- NOTES:
1. FIBER ROLL SHALL BE MADE FROM 100% BIODEGRADABLE MATERIAL.
 2. FIBER ROLL SILT BARRIER SHALL BE INSTALLED ALONG CONTOUR AND ON SLOPES 5H:1V OR FLATTER UNLESS OTHERWISE APPROVED BY THE ENGINEER.
 3. THE INSTALLATION CONFIGURATION SHALL PREVENT RUNOFF FROM LEAVING THE SITE OR ENTERING A WATERCOURSE WITHOUT PASSING THROUGH A SILT BARRIER.
 4. THE MAXIMUM LENGTH OF SLOPE DRAINING TO THE SILT BARRIER SHALL BE 100 FEET.
 5. FIBER ROLL SHALL BE INSTALLED BY SHAPING A 4 INCH DEEP FURROW TO MATCH THE SHAPE OF THE LOG, SECURING IN FURROW WITH WOOD STAKES, AND TAMPING THE GROUND AROUND THE FIBER ROLL TO FILL VOIDS BETWEEN THE LOG AND THE GROUND.



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Plunge Creek Conservation Project
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