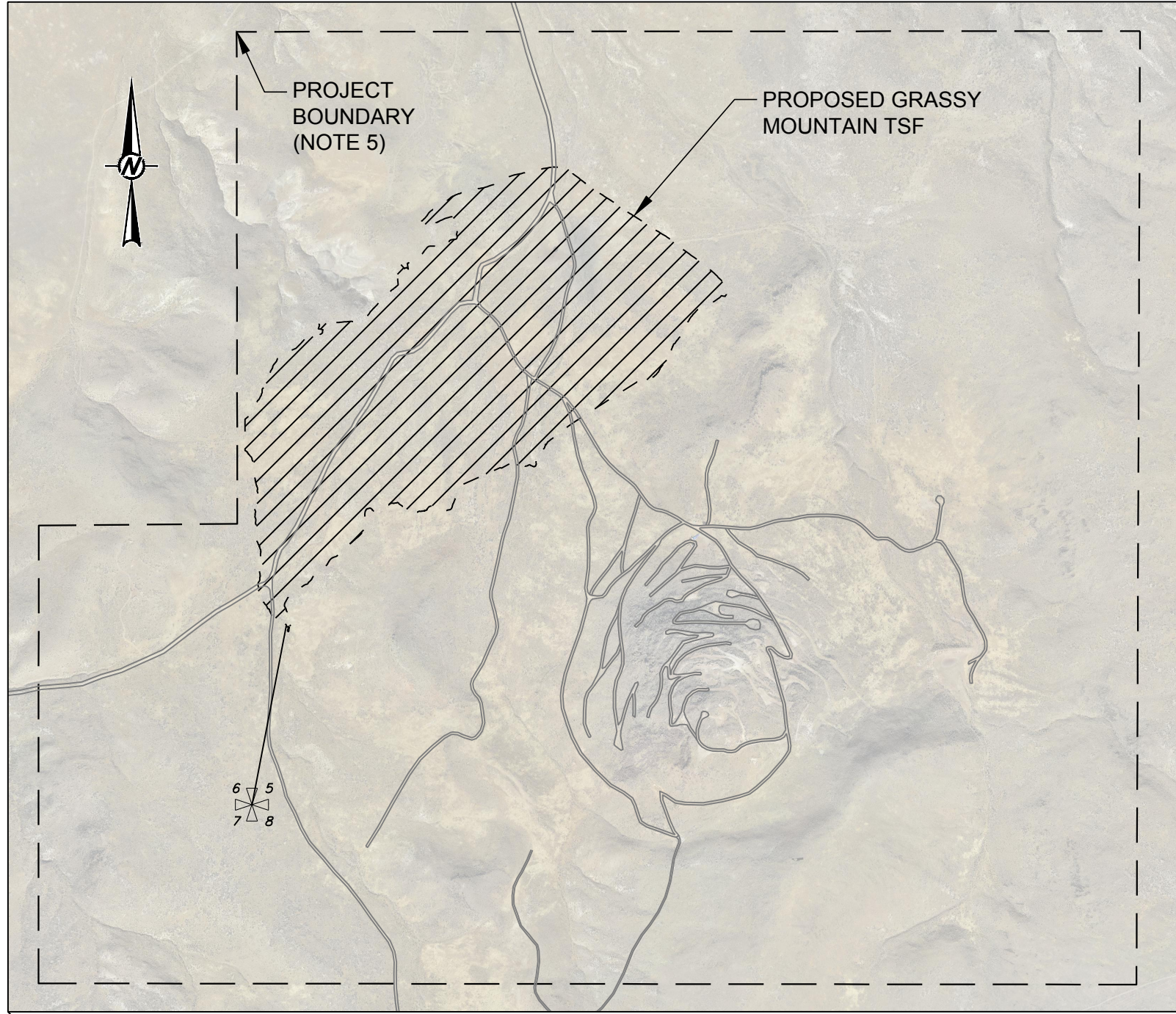


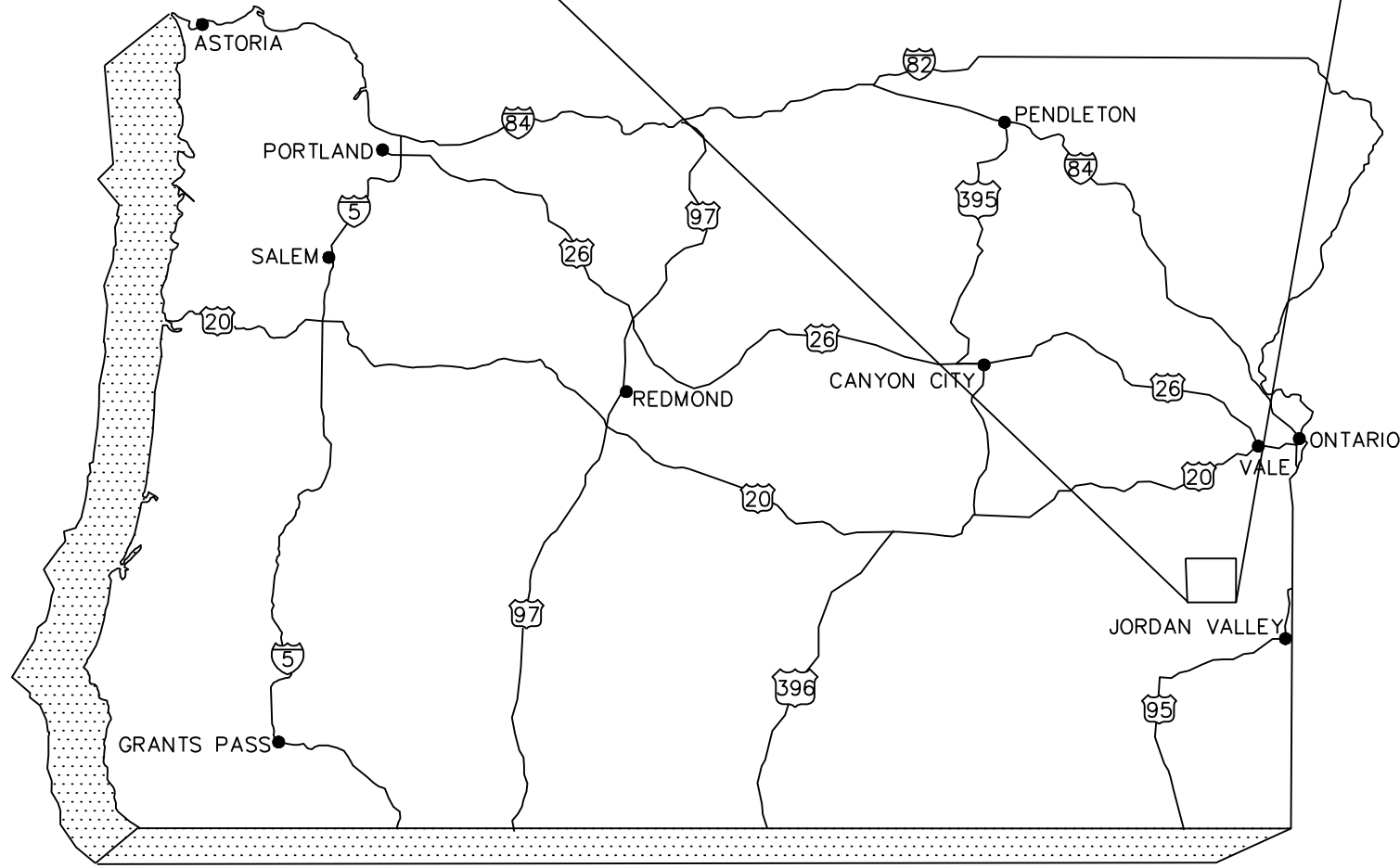
Path: \\verod\del\MDA\166324\Grassy Mountain\PF\600_Drawing\PRODUCTION\CONSOLIDATED PERMIT | File Name: T1 - Title Sheet.dwg | Last Edited By: jayrinc Date: 2019-11-06 Time: 4:09:00 PM | Printed By: jayrinc Date: 2019-11-06 Time: 4:29:32 PM



SITE LOCATION MAP

(NOT TO SCALE)

NEAREST TOWNSHIP AND RANGE LOCATED IN S8 T22S R44E



STATE OF OREGON

(NOT TO SCALE)



CALICO RESOURCES USA CORP.
GRASSY MOUNTAIN PROJECT
TAILINGS STORAGE FACILITY AND WASTE ROCK DUMP
MALHEUR COUNTY, OREGON

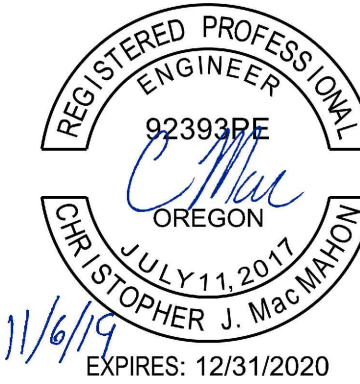
Sheet List Table	
Sheet Number	Sheet Title
T1	TITLE SHEET
G1	TSF STORAGE CAPACITY CURVE
G2	GEOTECHNICAL EXPLORATION LOCATION MAP
C1	OVERALL FACILITY LAYOUT
C2	TAILINGS STORAGE FACILITY LAYOUT - STAGE 1 BASIN GRADING
C3	UNDERDRAIN CHANNEL LAYOUT
C4	RECLAIM POND LAYOUT
C5	TAILINGS STORAGE FACILITY LAYOUT - STAGE 1
C6A	EMBANKMENT AND ROAD PROFILE (1 OF 2) - STAGE 1
C6B	EMBANKMENT AND ROAD PROFILE (2 OF 2) - STAGE 1
C7	PERMANENT ACCESS ROAD PROFILE
C8	TAILINGS FACILITY LAYOUT - STAGE 2
C9A	EMBANKMENT AND ROAD PROFILE (1 OF 2) - STAGE 2
C9B	EMBANKMENT AND ROAD PROFILE (2 OF 2) - STAGE 2
C10	TAILINGS STORAGE FACILITY LAYOUT - STAGE 3
C11A	EMBANKMENT AND ROAD PROFILE (1 OF 2) - STAGE 3
C11B	EMBANKMENT AND ROAD PROFILE (2 OF 2) - STAGE 3
C12	TAILINGS STORAGE FACILITY OVERALL SECTIONS
C13	TAILINGS STORAGE FACILITY EMBANKMENT SECTIONS
C14	WASTE ROCK DUMP LAYOUT
C15	UNDERDRAIN COLLECTION SYSTEM LAYOUT

Sheet List Table (Continued)	
Sheet Number	Sheet Title
C16	LEAK DETECTION SYSTEM LAYOUT
C17	CONCEPTUAL CLOSURE PLAN
D1	DETAILS (1 OF 9) - TAILINGS STORAGE FACILITY
D2	DETAILS (2 OF 9) - UNDERDRAIN COLLECTION SYSTEM
D3	DETAILS (3 OF 9) - UNDERDRAIN COLLECTION SYSTEM
D4	DETAILS (4 OF 9) - UNDERDRAIN COLLECTION SYSTEM, RECLAIM WATER, AND TAILINGS DISTRIBUTION
D5	DETAILS (5 OF 9) - UNDERDRAIN FLUME
D6	DETAILS (6 OF 9) - RECLAIM POND
D7	DETAILS (7 OF 9) - WASTE ROCK DUMP
D8	DETAILS (8 OF 9) - WASTE ROCK DUMP
D9	DETAILS (9 OF 9) - STRUCTURAL CONCRETE
SW1	EAST PERMANENT DIVERSION CHANNEL ALIGNMENT
SW2	WEST PERMANENT DIVERSION CHANNEL ALIGNMENT
SW3	STORMWATER DIVERSION CHANNEL PROFILES
SW4	STORMWATER DIVERSION DETAILS (1 OF 2)
SW5	STORMWATER DIVERSION DETAILS (2 OF 2)
I1	GEOTECHNICAL INSTRUMENTATION LAYOUT (1 OF 2)
I2	GEOTECHNICAL INSTRUMENTATION LAYOUT (2 OF 2)
I3	GEOTECHNICAL INSTRUMENTATION SECTIONS
I4	GEOTECHNICAL INSTRUMENTATION DETAILS (1 OF 2)
I5	GEOTECHNICAL INSTRUMENTATION DETAILS (2 OF 2)

GENERAL NOTES

- EXISTING GROUND TOPOGRAPHY PROVIDED BY CALICO RESOURCES USA CORP. ON MARCH 29, 2017 IN AN ELECTRONIC FILE TITLED "contours_2ft_expanded_project_area.dxf".
- AERIAL IMAGERY PROVIDED BY CALICO RESOURCES USA CORP. ON MARCH 29, 2017 IN AN ELECTRONIC FILE TITLED "Orthophoto_1ft_ExpandedArea.tif".
- PROJECT AREA BOUNDARY PROVIDED BY CALICO RESOURCES USA CORP. ON JANUARY 12, 2017 IN AN ELECTRONIC FILE TITLED "grassymtn_updated_permitareaboundary.dxf".
- DRAWINGS PRESENTED IN NAD83 DATUM, ZONE 11, VERTICAL DATUM (NAVD) 88.
- UNLESS OTHERWISE NOTED, ALL ELEVATIONS ARE TO LINER SURFACE OR FINISH GROUND IN UNLINED AREAS.

ISSUED FOR CONSTRUCTION



0	2019-11-06	ISSUED FOR CONSTRUCTION	MDB	JRP	CJM	RAB
REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED

CLIENT
CALICO RESOURCES USA CORP.
GRASSY MOUNTAIN PROJECT
MALHEUR COUNTY, OREGON

CONSULTANT



GOLDER ASSOCIATES INC.
595 DOUBLE EAGLE COURT, SUITE 1000
RENO, NV 89521
USA
[+1] (775) 828-9604
www.golder.com



PROJECT
GRASSY MOUNTAIN
TAILINGS STORAGE FACILITY AND WASTE ROCK DUMP
DETAILED DESIGN

TITLE
TITLE SHEET

1 in IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI D

Path: \\verod\del\MDA\1663241_Grassy Mountain PFS\000_Drawing\PRODUCTION\CONSOLIDATED PERMIT | File Name: G1_Storage Capacity Curve.dwg | Last Edited By: jgprince Date: 2019-11-06 Time: 1:44:28 PM | Printed By: jgprince Date: 2019-11-06 Time: 4:30:05 PM

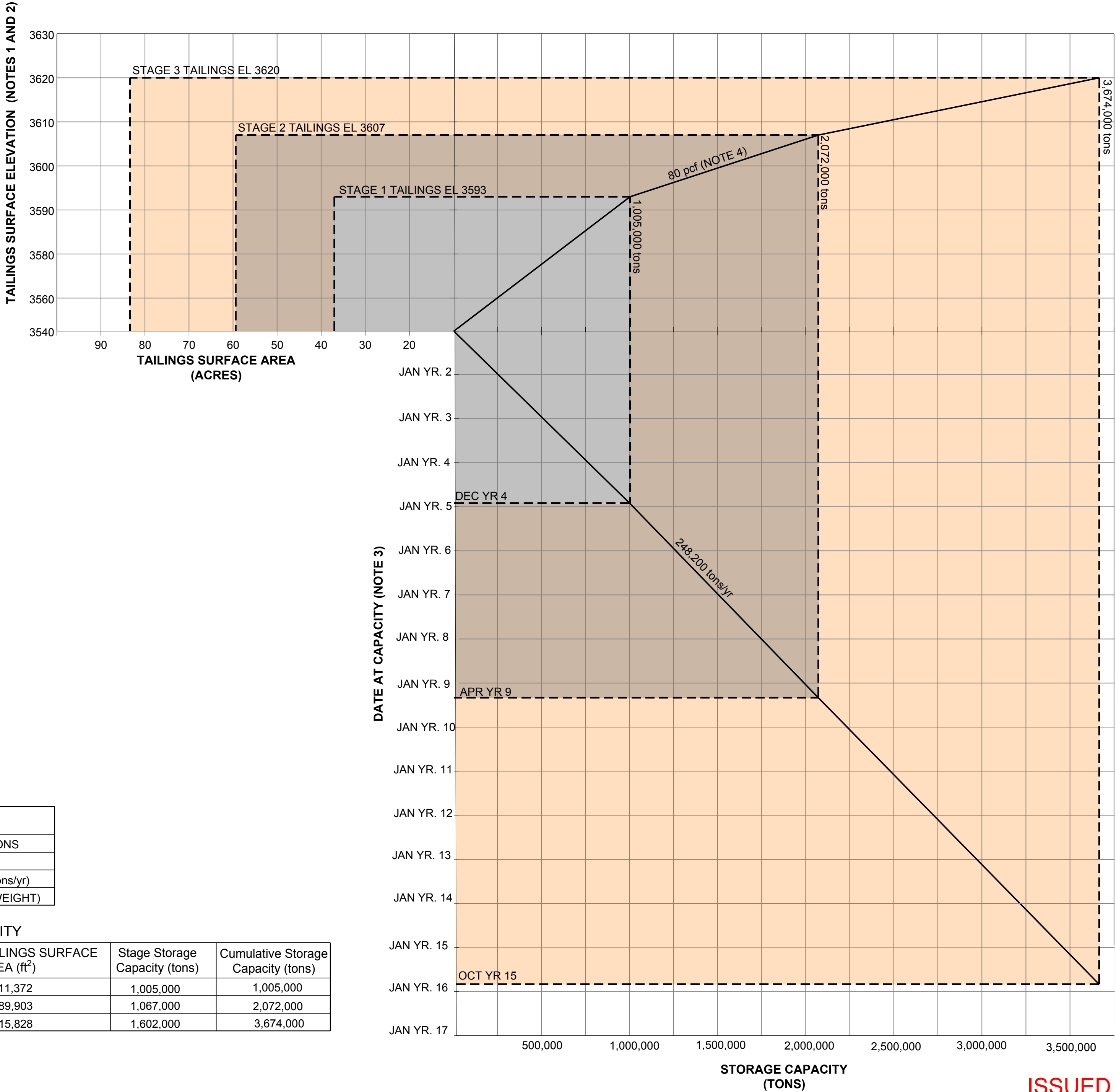
ABBREVIATIONS	
UNIT	TERMINOLOGY
DWG	DRAWING
ft	FEET
ft²	SQUARE FEET
PCF	POUND-FORCE PER CUBIC FOOT
mi	MILES
TP	TEST PIT
BH	BOREHOLE
CPT	CONE PENETRATION TEST
RL	REFERENCE LINE
CP	CONTROL POINT
YR	YEAR
N	NORTHING
E	EASTING
EL	ELEVATION
ST.	STAGE
STA.	STATION
INC	INCLINOMETER
SM	SURVEY MONUMENT
PZ-TF	FOUNDATION PIEZOMETER - BELOW TSF EMABNKMENTS
PZ-TI	IMPOUNDMENT PIEZOMETER - DRAINAGE LAYER ABOVE TSF LINING SYSTEM
PZ-TU	UNDERLINER PIEZOMETER - BELOW TSF LINING SYSTEM
PZ-WI	IMPOUNDMENT PIEZOMETER - DRAINAGE LAYER ABOVE WRD LINING SYSTEM
PZ-WU	UNDERLINER PIEZOMETER - BELOW WRD LINING SYSTEM
CPP	RECLAIM POND CONTROL POINTS
CPU	UNDERDRAIN CHANNEL CONTROL POINTS
CPW	WASTE ROCK DUMP CONTROL POINTS
C/C	CENTER-ON-CENTER
MIN	MINIMUM
MAX	MAXIMUM
DR	DIMENSION RATIO
S.S.	STAINLESS STEEL
STD.	STANDARD
MIL	MILLIMETER
GCL	GEOSYNTHETIC CLAY LINER
HDPE	HIGH-DENSITY POLYETHYLENE
CPE	CORRUGATED POLYETHYLENE
DIA.	DIAMETER
IN.	INCHES
SCH.	SCHEDULE

DESIGN PARAMETER

PARAMETERS	DESIGN
TARGET TAILINGS CAPACITY	3.67 MILLION TONS
AVERAGE TAILINGS DRY DENSITY	80 PCF
MAXIMUM THROUGHPUT RATE	680 tpd (248,200 tons/yr)
DESIGN SLURRY CONCENTRATION	~46% SOLIDS (BY WEIGHT)

PHASE ELEVATIONS AND CAPACITY

STAGE	MAXIMUM EMBANKMENT HEIGHT (ft)	MAIN EMBANKMENT CREST ELEVATION (ft)	MAXIMUM TAILINGS SURFACE AREA (ft²)	Stage Storage Capacity (tons)	Cumulative Storage Capacity (tons)
1	53	Varies (Max. 3595)	1,611,372	1,005,000	1,005,000
2	68	Varies (Max. 3609)	2,589,903	1,067,000	2,072,000
3	84	Varies (Max. 3622)	3,615,828	1,602,000	3,674,000



LEGEND

- STAGE I TAILINGS STORAGE
- STAGE II TAILINGS STORAGE
- STAGE III TAILINGS STORAGE

NOTES

- TAILINGS SURFACE ELEVATION IS THE MAXIMUM ELEVATION OF THE TAILINGS ADJACENT TO THE NORTH EMBANKMENT.
- MINIMUM FREEBOARD AT NORTH EMBANKMENT IS 2 FEET ABOVE MAXIMUM TAILINGS SURFACE ELEVATION.
- ASSUMES TAILINGS DEPOSITION BEGINS JANUARY OF YEAR 1.
- ASSUMED TAILS DENSITY BASED ON GOLDER'S 2019 CONSOLIDATION TESTING AND MODELING PROGRAM.



0	2019-11-06	ISSUED FOR CONSTRUCTION	MDB	JRP	CJM	RAB
REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED

CLIENT

CALICO RESOURCES USA CORP.
GRASSY MOUNTAIN PROJECT
MALHEUR COUNTY, OREGON

CONSULTANT

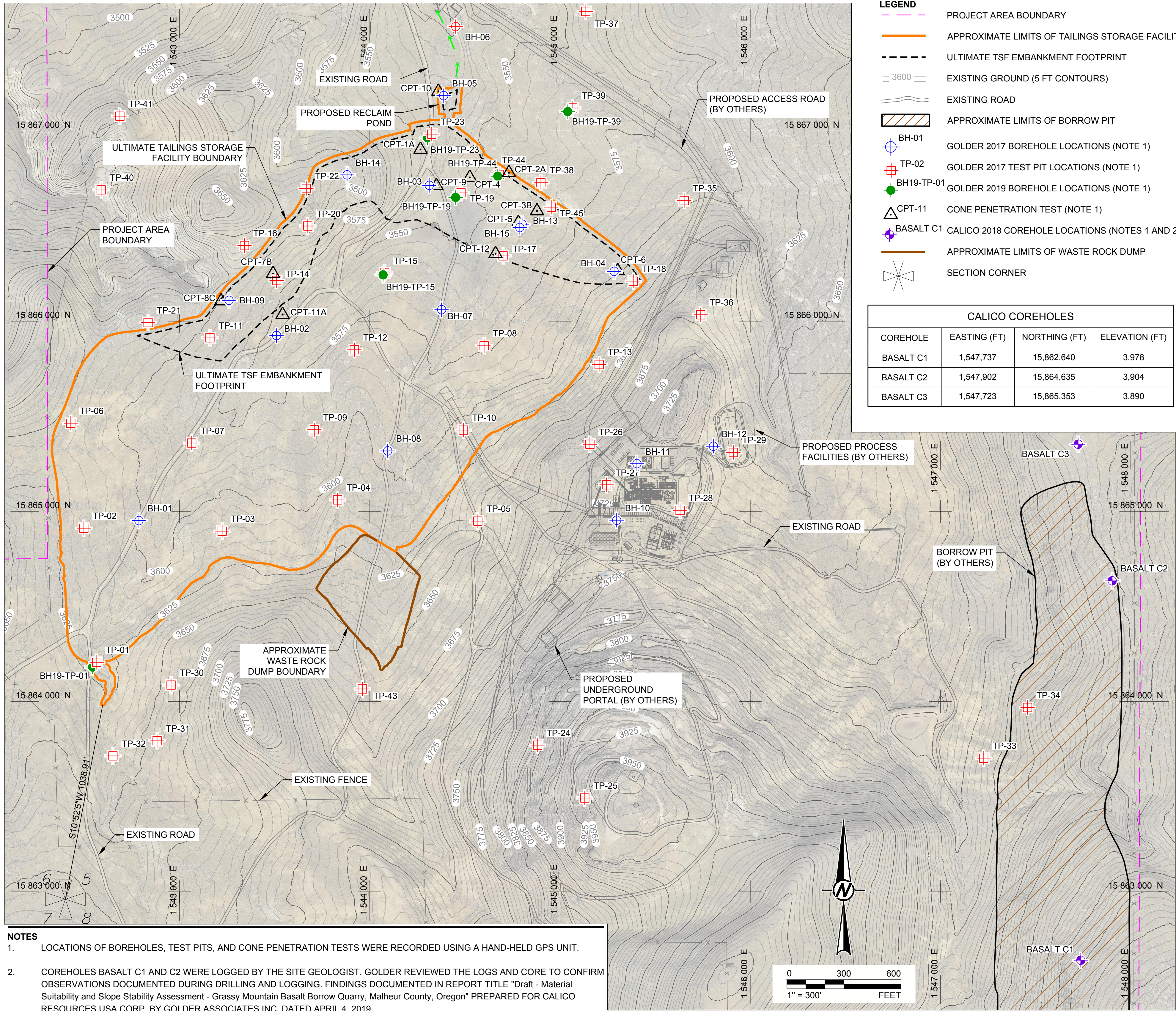
GOLDER

GOLDER ASSOCIATES INC.
595 DOUBLE EAGLE COURT, SUITE 1000
RENO, NV 89521
USA
[+1] (775) 828-9604
www.golder.com

PROJECT	GRASSY MOUNTAIN TAILINGS STORAGE FACILITY AND WASTE ROCK DUMP DETAILED DESIGN
TITLE	TSF STORAGE CAPACITY CURVE
PROJECT NO.	1663241
REV.	0
2 of 42	DRAWING
	G1

1 in IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM A4S/D

Path: \\verod\del\MDA\1663241_Grassy Mountain PFS\000_Drawing\PRODUCTION\CONSOLIDATED PERMIT - File Name: 1663241_G_001_Geotechnical drilling and site layout.dwg | Last Edited By: jgnice Date: 2019-11-08 Time: 11:27:25 AM | Printed By: jgnice Date: 2019-11-08 Time: 4:30:58 PM



- LEGEND**
- PROJECT AREA BOUNDARY
 - APPROXIMATE LIMITS OF TAILINGS STORAGE FACILITY
 - ULTIMATE TSF EMBANKMENT FOOTPRINT
 - EXISTING GROUND (5 FT CONTOURS)
 - EXISTING ROAD
 - APPROXIMATE LIMITS OF BORROW PIT
 - BH-01 GOLDER 2017 BOREHOLE LOCATIONS (NOTE 1)
 - TP-02 GOLDER 2017 TEST PIT LOCATIONS (NOTE 1)
 - BH19-TP-01 GOLDER 2019 BOREHOLE LOCATIONS (NOTE 1)
 - CPT-11 CONE PENETRATION TEST (NOTE 1)
 - BASALT C1 CALICO 2018 COREHOLE LOCATIONS (NOTES 1 AND 2)
 - APPROXIMATE LIMITS OF WASTE ROCK DUMP
 - SECTION CORNER

CALICO COREHOLES			
COREHOLE	EASTING (FT)	NORTHING (FT)	ELEVATION (FT)
BASALT C1	1,547,737	15,862,640	3,978
BASALT C2	1,547,902	15,864,635	3,904
BASALT C3	1,547,723	15,865,353	3,890

TEST PIT COORDINATES			
TEST PIT	EASTING (FT)	NORTHING (FT)	ELEVATION (FT)
TP-01	1,542,565	15,864,207	3,618
TP-02	1,542,497	15,864,912	3,617
TP-03	1,543,224	15,864,896	3,609
TP-04	1,543,831	15,865,060	3,614
TP-05	1,544,568	15,864,949	3,648
TP-06	1,542,429	15,865,463	3,617
TP-07	1,543,064	15,865,360	3,622
TP-08	1,544,601	15,865,871	3,573
TP-09	1,543,709	15,865,430	3,586
TP-10	1,544,492	15,865,427	3,607
TP-11	1,543,160	15,865,912	3,595
TP-12	1,543,919	15,865,850	3,586
TP-13	1,545,206	15,865,772	3,634
TP-14	1,543,511	15,866,214	3,582
TP-15	1,544,079	15,866,253	3,565
TP-16	1,543,342	15,866,398	3,617
TP-17	1,544,701	15,866,344	3,559
TP-18	1,545,385	15,866,211	3,611
TP-19	1,544,480	15,866,675	3,546
TP-20	1,543,674	15,866,501	1,099
TP-21	1,542,835	15,865,993	3,619
TP-22	1,543,667	15,866,698	3,615

TEST PIT COORDINATES			
TEST PIT	EASTING (FT)	NORTHING (FT)	ELEVATION (FT)
TP-23	1,544,326	15,866,983	3,541
TP-24	1,544,883	15,863,771	3,840
TP-25	1,545,130	15,863,493	3,943
TP-26	1,545,157	15,865,353	3,697
TP-27	1,545,245	15,865,140	3,719
TP-28	1,545,631	15,865,005	3,722
TP-29	1,545,911	15,865,310	3,680
TP-30	1,542,956	15,864,087	3,659
TP-31	1,542,882	15,863,794	3,657
TP-32	1,542,650	15,863,715	3,637
TP-33	1,547,227	15,863,702	3,789
TP-34	1,547,458	15,863,969	3,826
TP-35	1,545,653	15,866,634	3,597
TP-36	1,545,740	15,866,034	3,669
TP-37	1,545,136	15,867,629	3,562
TP-38	1,544,900	15,866,729	3,563
TP-39	1,545,067	15,867,121	3,565
TP-40	1,542,589	15,866,691	3,501
TP-41	1,542,687	15,867,078	3,550
TP-43	1,543,961	15,864,067	3,662
TP-44	1,544,680	15,866,772	3,554
TP-45	1,544,954	15,866,599	3,564

BOREHOLE COORDINATES			
BOREHOLE	EASTING (FT)	NORTHING (FT)	ELEVATION (FT)
BH-01	1,542,787	15,864,952	3,600
BH-02	1,543,510	15,865,924	3,571
BH-03	1,544,313	15,866,714	3,531
BH-04	1,545,284	15,866,262	3,598
BH-05	1,544,389	15,867,186	3,528
BH-06	1,544,452	15,867,549	3,530
BH-07	1,544,378	15,866,060	3,567
BH-08	1,544,094	15,865,318	3,597
BH-09	1,543,260	15,866,110	3,597
BH-10	1,545,298	15,864,954	3,733
BH-11	1,545,404	15,865,251	3,718

BOREHOLE COORDINATES			
BOREHOLE	EASTING (FT)	NORTHING (FT)	ELEVATION (FT)
BH-12	1,545,806	15,865,342	3,691
BH-13	1,544,801	15,866,510	3,558
BH-14	1,543,881	15,866,769	3,601
BH-15	1,544,789	15,866,492	3,558
BH19-TP-01	1,542,543	15,864,181	3,618
BH19-TP-15	1,544,070	15,866,243	3,565
BH19-TP-19	1,544,451	15,866,651	3,546
BH19-TP-23	1,544,304	15,866,964	3,541
BH19-TP-39	1,545,041	15,867,102	3,565
BH19-TP-44	1,544,673	15,866,762	3,554

CONE PENETRATION TEST COORDINATES			
NAME	EASTING (FT)	NORTHING (FT)	ELEVATION (FT)
CPT-1A	1,544,267	15,866,903	3,545
CPT-2A	1,544,732	15,866,781	3,557
CPT-3B	1,544,879	15,866,580	3,560
CPT-4	1,544,525	15,866,756	3,548
CPT-5	1,544,781	15,866,518	3,558
CPT-6	1,545,303	15,866,264	3,599
CPT-7B	1,543,492	15,866,250	3,586
CPT-8C	1,543,219	15,866,106	3,599
CPT-9	1,544,351	15,866,712	3,542
CPT-10	1,544,361	15,867,209	3,538
CPT-11A	1,543,542	15,866,035	3,571
CPT-12	1,544,661	15,866,355	3,558

- NOTES**
- LOCATIONS OF BOREHOLES, TEST PITS, AND CONE PENETRATION TESTS WERE RECORDED USING A HAND-HELD GPS UNIT.
 - COREHOLES BASALT C1 AND C2 WERE LOGGED BY THE SITE GEOLOGIST. GOLDER REVIEWED THE LOGS AND CORE TO CONFIRM OBSERVATIONS DOCUMENTED DURING DRILLING AND LOGGING. FINDINGS DOCUMENTED IN REPORT TITLE "Draft - Material Suitability and Slope Stability Assessment - Grassy Mountain Basalt Borrow Quarry, Malheur County, Oregon" PREPARED FOR CALICO RESOURCES USA CORP. BY GOLDER ASSOCIATES INC. DATED APRIL 4, 2019.

CLIENT
CALICO RESOURCES USA CORP.
GRASSY MOUNTAIN PROJECT
MALHEUR COUNTY, OREGON

CONSULTANT



GOLDER ASSOCIATES INC.
595 DOUBLE EAGLE COURT, SUITE 1000
RENO, NV 89521
USA
[+1] (775) 828-9604
www.golder.com



PROJECT
GRASSY MOUNTAIN
TAILINGS STORAGE FACILITY AND WASTE ROCK DUMP
DETAILED DESIGN

TITLE
GEOTECHNICAL EXPLORATION LOCATION MAP

PROJECT NO.
1663241

REV. 0 3 of 42
DRAWING G2

0 2019-11-06 ISSUED FOR CONSTRUCTION

REV. YYYY-MM-DD DESCRIPTION

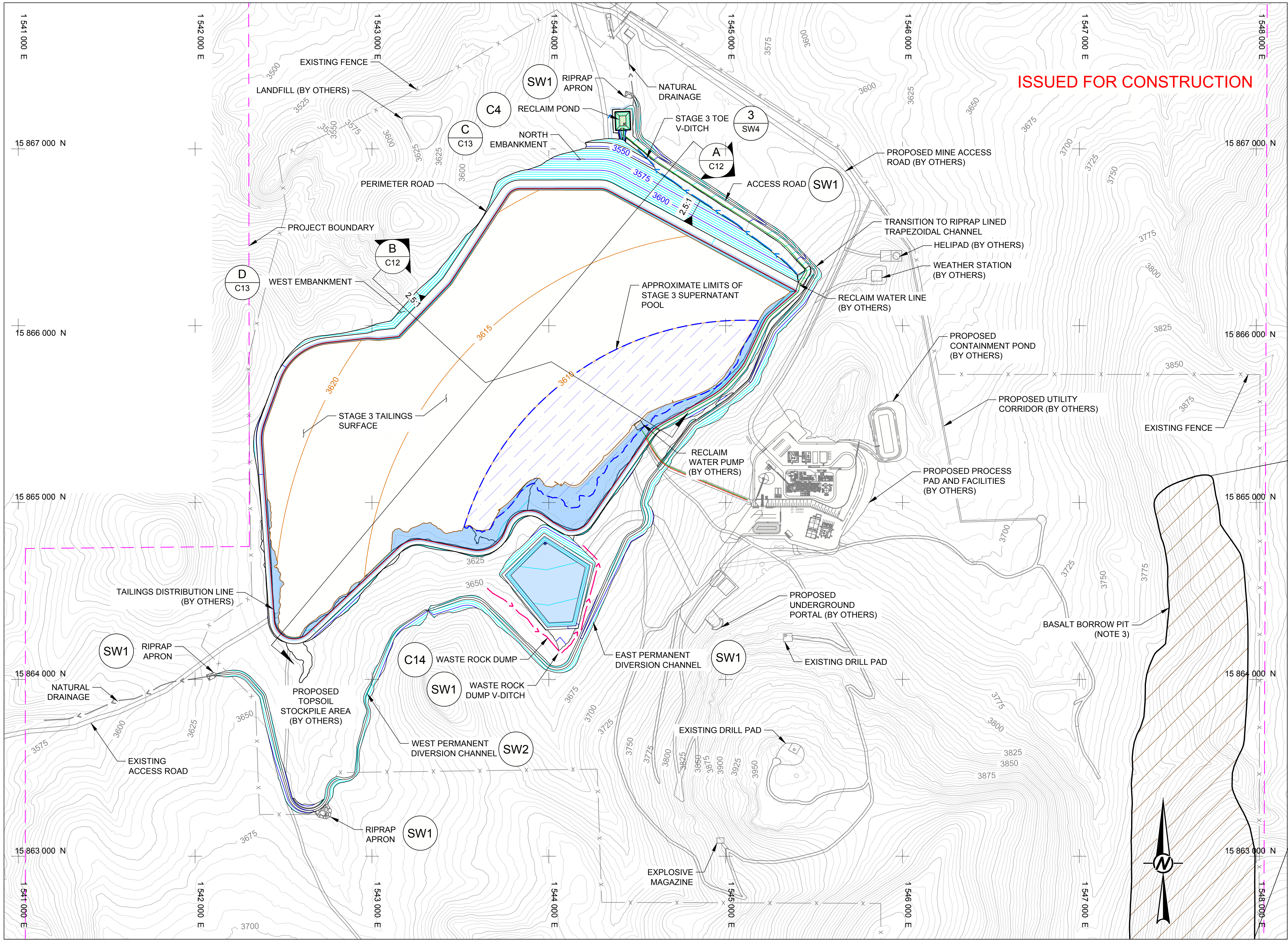
MDB JRP CJM RAB

DESIGNED PREPARED REVIEWED APPROVED



1 in IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM A3/D

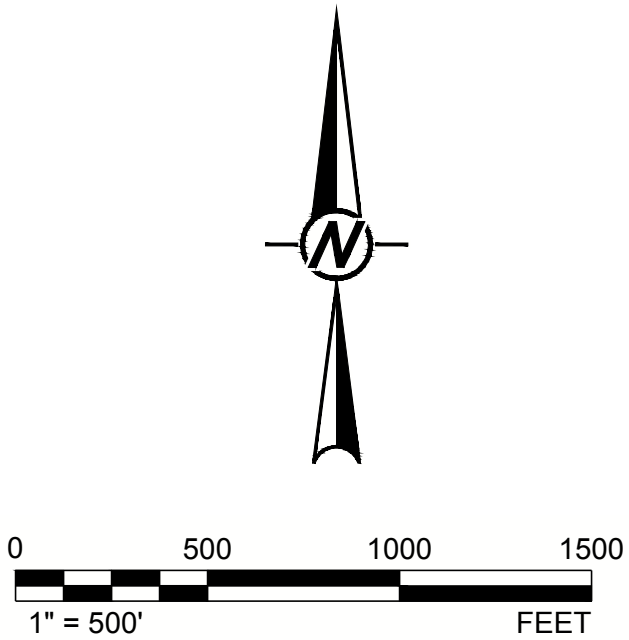
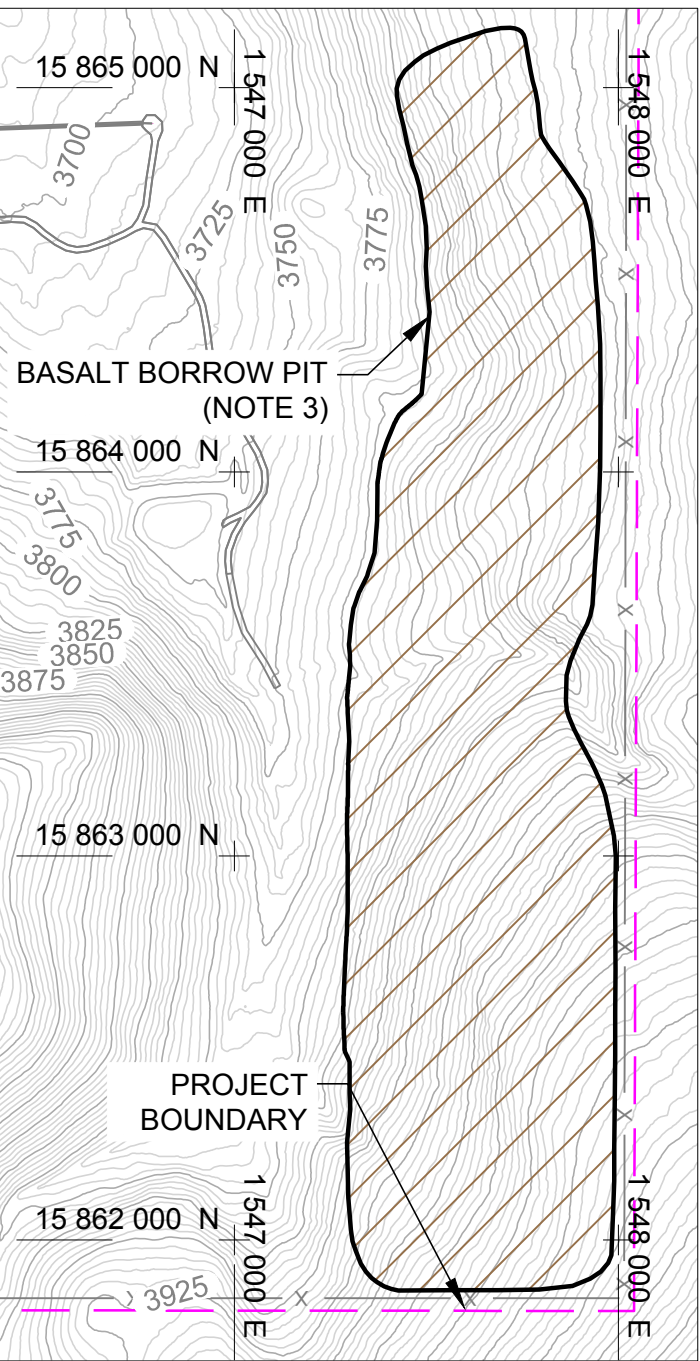
Path: \\verod\del\MDA\1663241 Grassy Mountain PFS\600_Drawing\PRODUCTION\CONSOLIDATED PERMIT - File Name: C1 OVERALL FACILITY LAYOUT.dwg | Last Edited By: jperice Date: 2019-11-06 Time: 4:26:39 PM | Printed By: jperice Date: 2019-11-06 Time: 4:32:31 PM



ISSUED FOR CONSTRUCTION

- LEGEND**
- 3600 — EXISTING GROUND CONTOURS (5 FT CONTOURS) (GENERAL NOTE 1)
 - 3600 — PROPOSED CONTOURS (5 FT CONTOURS)
 - 3600 — PROPOSED TAILINGS SURFACE (5 FT CONTOURS)
 - TAILINGS DISTRIBUTION LINE (BY OTHERS)
 - RECLAIM WATER LINES (BY OTHERS)
 - PROJECT BOUNDARY
 - APPROXIMATE LIMITS OF SUPERNATANT POOL
 - LIMITS OF RECLAIM POND LINING SYSTEM (42 D6)
 - EXISTING FENCING
 - PERMANENT V-DITCH (3 SW4)
 - TEMPORARY V-DITCH
 - NATURAL DRAINAGE
 - LIMITS OF BASALT BORROW PIT
 - LIMITS OF LINING SYSTEM (5 D1)

- NOTES**
- STORMWATER LAYOUT PRESENTED ON DRAWINGS SW1 AND SW2.
 - LAYOUT AND TOPOGRAPHY SHOWN FOR MINE WASTE FACILITIES REPRESENT FINAL CONDITIONS AT THE END OF OPERATIONS.
 - PROPOSED BASALT QUARRY DESIGN PREPARED BY MINE DEVELOPMENT ASSOCIATES AND GOLDER IS PRESENTED AS APPENDIX V OF THE GRASSY MOUNTAIN PROJECT CONSOLIDATED PERMIT APPLICATION. DOCUMENT TITLED "ABBREVIATED OPERATING PERMIT APPLICATION - GRASSY MOUNTAIN BASALT BORROW QUARRY," REVISION 0. DATED MAY 2, 2019.



0	2019-11-06	ISSUED FOR CONSTRUCTION	MDB	JRP	CJM	RAB
REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED

CLIENT
CALICO RESOURCES USA CORP.
GRASSY MOUNTAIN PROJECT
MALHEUR COUNTY, OREGON

CONSULTANT



GOLDER ASSOCIATES INC.
595 DOUBLE EAGLE COURT, SUITE 1000
RENO, NV 89521
USA
[+1] (775) 828-9604
www.golder.com

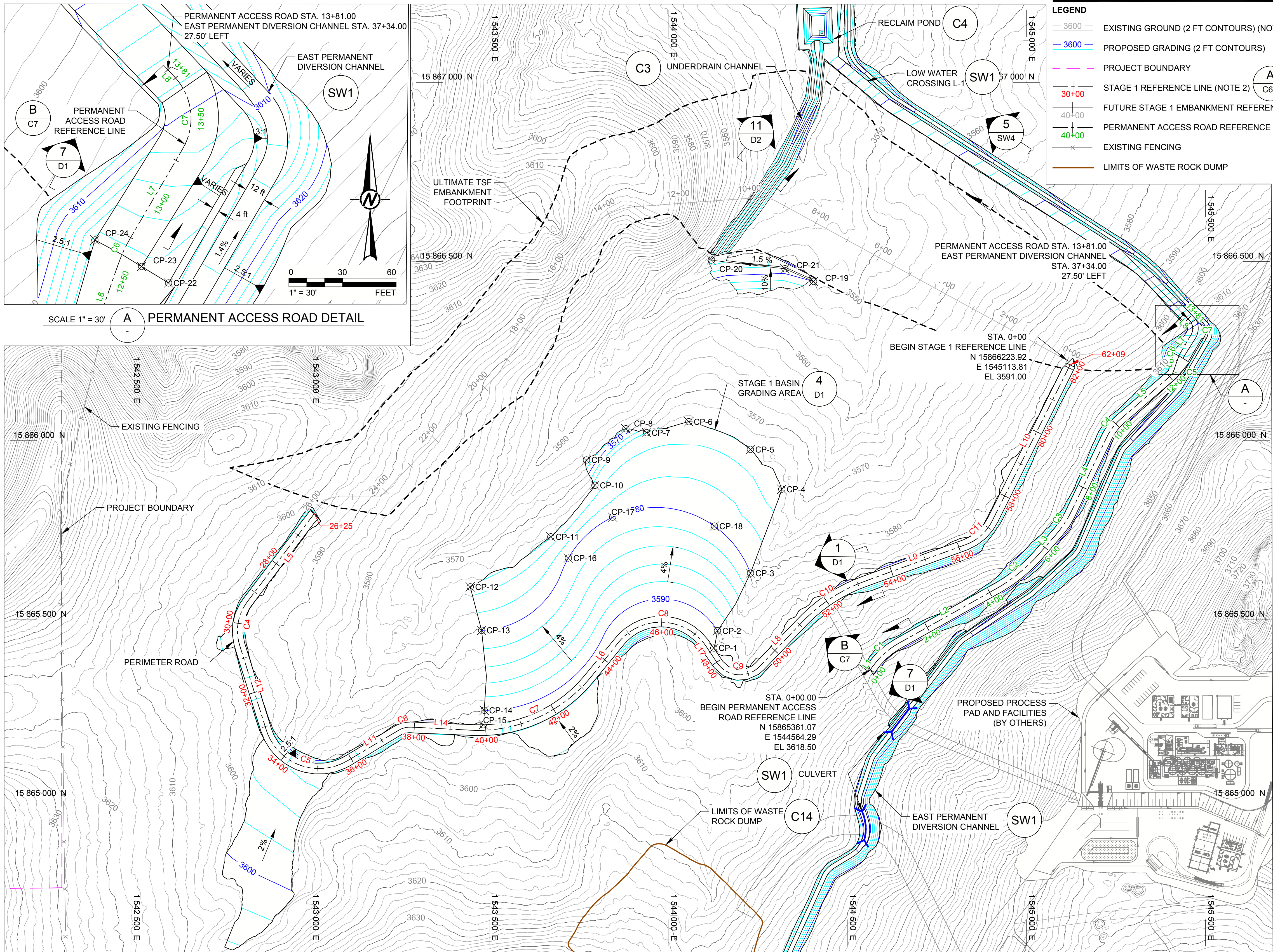
PROJECT
GRASSY MOUNTAIN
TAILINGS STORAGE FACILITY AND WASTE ROCK DUMP
DETAILED DESIGN

TITLE
OVERALL FACILITY LAYOUT

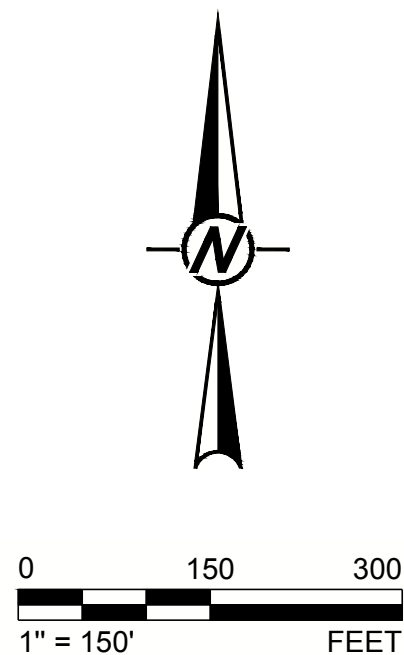
PROJECT NO. 1663241
REV. 0
4 of 42
DRAWING C1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM A3 AND 1 in

Path: \\verod\delm\DA\1663241_Calico\Grassy Mountain\PF\6000_Drawing\PRODUCTION\CONSOLIDATED PERMIT File Name: 1663241_C_001_Foundation layout and grading.dwg | Last Edited By: jprince Date: 2019-11-08 Time: 3:30:05 PM | Printed By: jprince Date: 2019-11-08 Time: 4:33:47 PM



ISSUED FOR CONSTRUCTION



CLIENT
CALICO RESOURCES USA CORP.
GRASSY MOUNTAIN PROJECT
MALHEUR COUNTY, OREGON



CONSULTANT

GOLDER ASSOCIATES INC.
595 DOUBLE EAGLE COURT, SUITE 1000
RENO, NV 89521
USA
[+1] (775) 828-9604
www.golder.com



PROJECT
GRASSY MOUNTAIN
TAILINGS STORAGE FACILITY AND WASTE ROCK DUMP
DETAILED DESIGN

TITLE
TAILINGS STORAGE FACILITY LAYOUT
STAGE 1 BASIN GRADING

PROJECT NO.
1663241

REV.
0

5 of 42

DRAWING
C2

0 2019-11-06 ISSUED FOR CONSTRUCTION

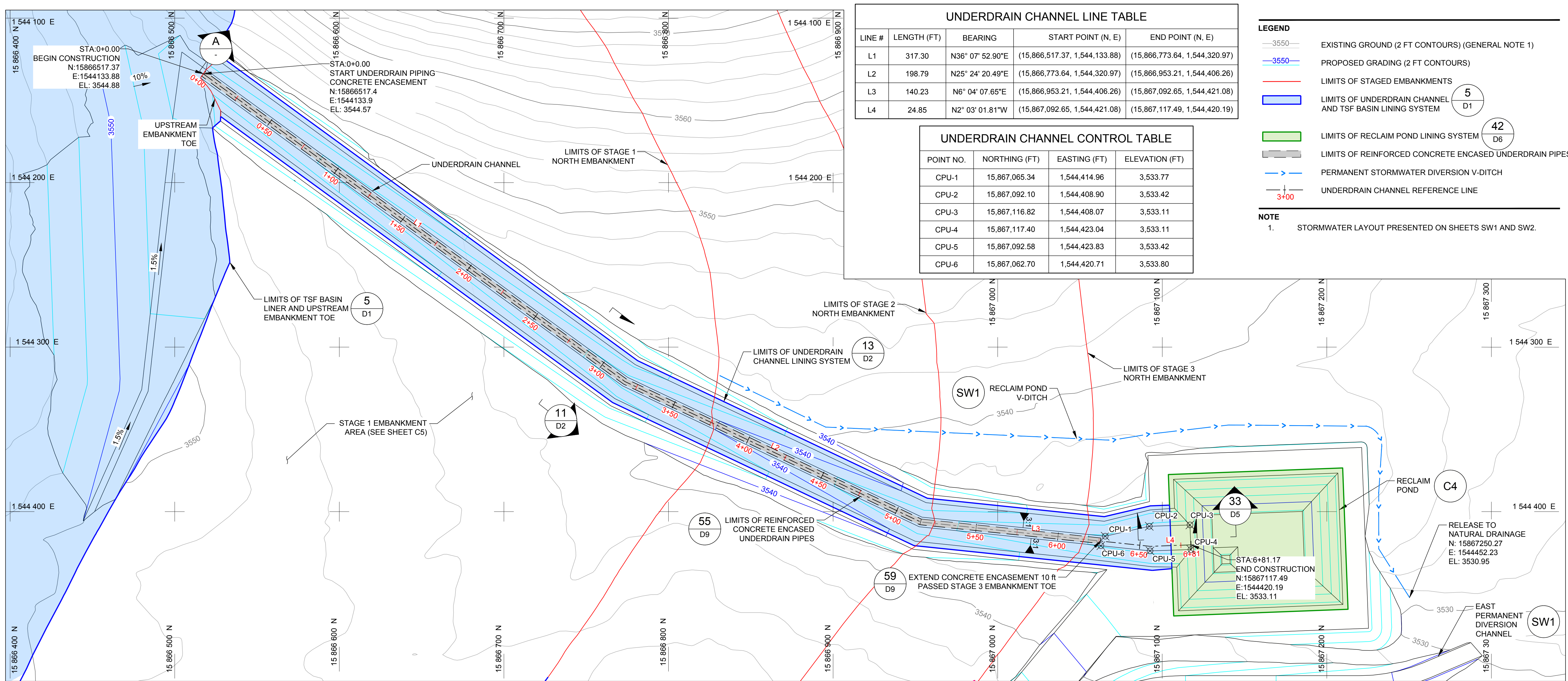
REV. YYYY-MM-DD DESCRIPTION

MDB JRP CJM RAB

DESIGNED PREPARED REVIEWED APPROVED

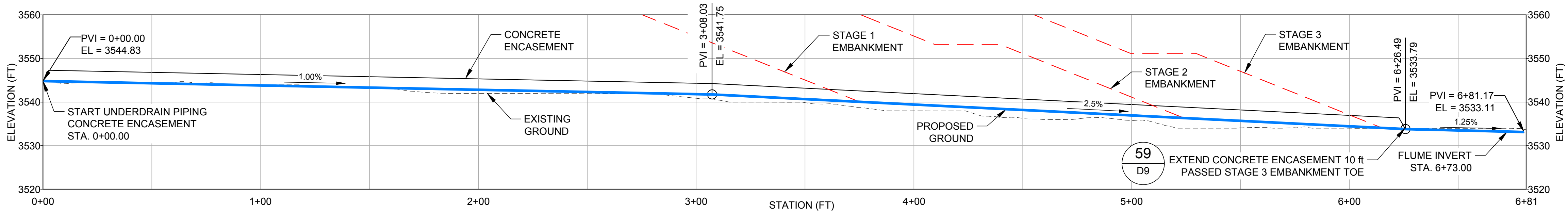
1 in IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI D

Path: \\verod\del\MDA\1663241_Grassy Mountain PFS\000_Drawing\PRODUCTION\CONSOLIDATED PERMIT - File Name: 1663241_C-011x UNDERDRAIN LAYOUT.dwg | Last Edited By: jprince Date: 2019-11-08 Time: 3:22:49 PM | Printed By: jprince Date: 2019-11-08 Time: 4:34:46 PM



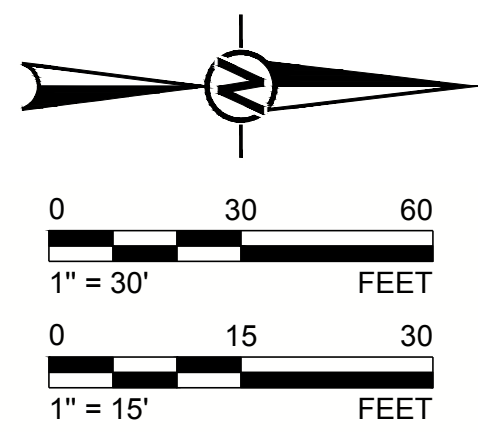
UNDERDRAIN CHANNEL LINE TABLE				
LINE #	LENGTH (FT)	BEARING	START POINT (N, E)	END POINT (N, E)
L1	317.30	N36° 07' 52.90"E	(15,866,517.37, 1,544,133.88)	(15,866,773.64, 1,544,320.97)
L2	198.79	N25° 24' 20.49"E	(15,866,773.64, 1,544,320.97)	(15,866,953.21, 1,544,406.26)
L3	140.23	N6° 04' 07.65"E	(15,866,953.21, 1,544,406.26)	(15,867,092.65, 1,544,421.08)
L4	24.85	N2° 03' 01.81"W	(15,867,092.65, 1,544,421.08)	(15,867,117.49, 1,544,420.19)

UNDERDRAIN CHANNEL CONTROL TABLE			
POINT NO.	NORTHING (FT)	EASTING (FT)	ELEVATION (FT)
CPU-1	15,867,065.34	1,544,414.96	3,533.77
CPU-2	15,867,092.10	1,544,408.90	3,533.42
CPU-3	15,867,116.82	1,544,408.07	3,533.11
CPU-4	15,867,117.40	1,544,423.04	3,533.11
CPU-5	15,867,092.58	1,544,423.83	3,533.42
CPU-6	15,867,062.70	1,544,420.71	3,533.80



SCALE 1" = 30'
VERT. SCALE 1" = 15'

UNDERDRAIN CHANNEL PROFILE



ISSUED FOR CONSTRUCTION

0	2019-11-06	ISSUED FOR CONSTRUCTION	MDB	JRP	CJM	RAB
REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED

CLIENT
CALICO RESOURCES USA CORP.
GRASSY MOUNTAIN PROJECT
MALHEUR COUNTY, OREGON

CONSULTANT
GOLDER

GOLDER ASSOCIATES INC.
595 DOUBLE EAGLE COURT, SUITE 1000
RENO, NV 89521
USA
[+1] (775) 828-9604
www.golder.com

PROJECT
**GRASSY MOUNTAIN
TAILINGS STORAGE FACILITY AND WASTE ROCK DUMP
DETAILED DESIGN**

TITLE
UNDERDRAIN CHANNEL LAYOUT

PROJECT NO.
1663241

REV. **0**

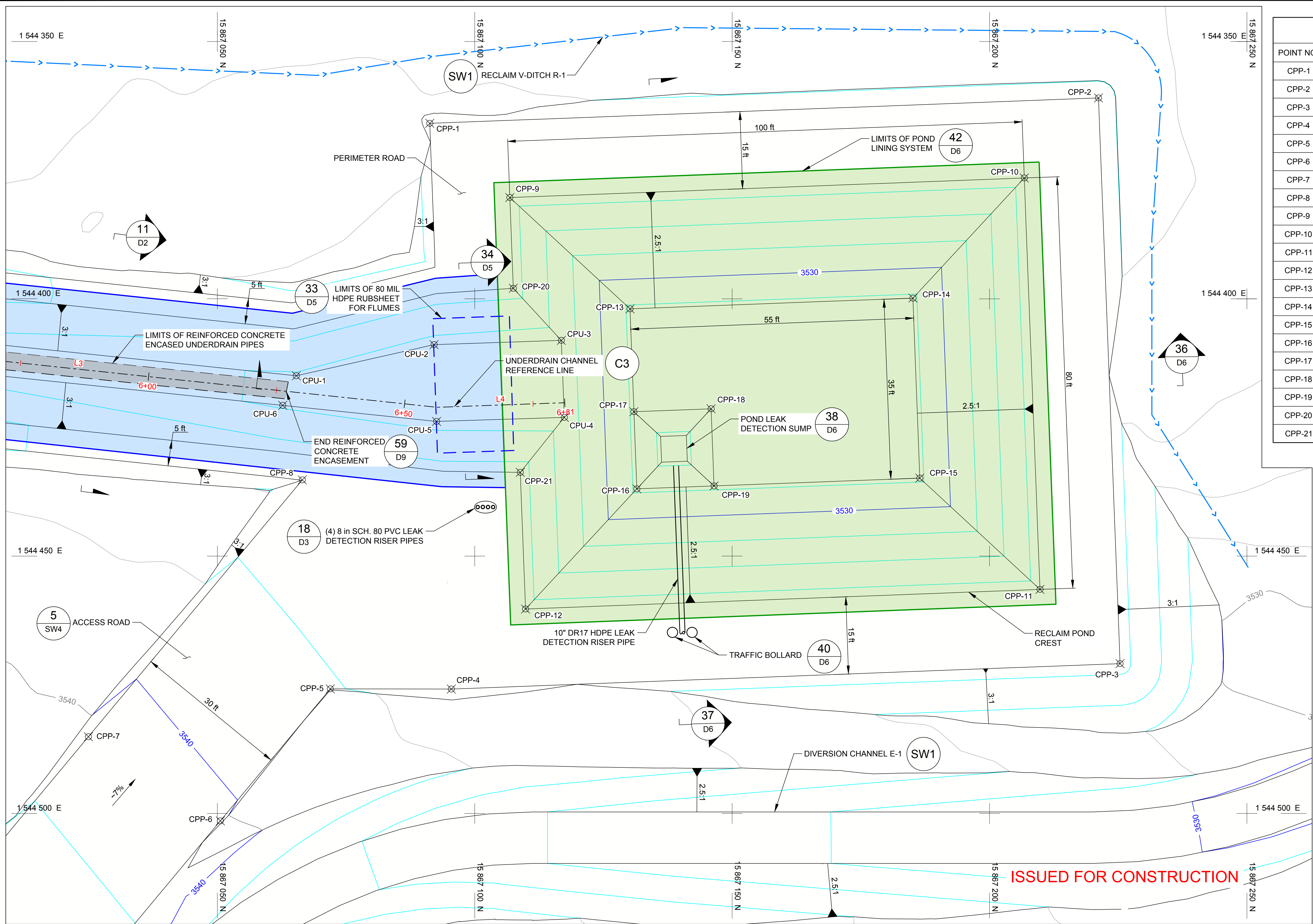
6 of 42

DRAWING
C3

REGISTERED PROFESSIONAL ENGINEER
92393PE
JULY 11, 2017
CHRISTOPHER J. MacMAHON
EXPIRES: 12/31/2020

1 in IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI D

Path: \\veritas\delm\DAI166241_Grassy Mountain PFS\600_Drawing\PRODUCTION\CONSOLIDATED PERMIT | File Name: C3 UNDERDRAIN POND LAYOUT.dwg | Last Edited By: jprice Date: 2019-11-06 Time: 3:31:23 PM | Printed By: jprice Date: 2019-11-06 Time: 4:35:35 PM



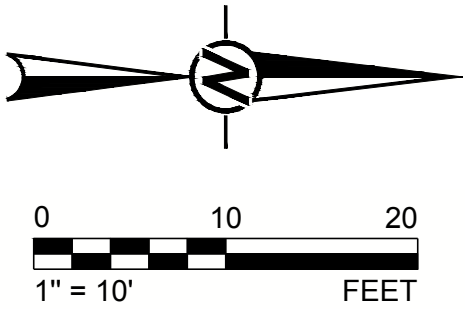
RECLAIM POND CONTROL TABLE				
POINT NO.	NORTHING (FT)	EASTING (FT)	DESCRIPTION	ELEVATION (FT)
CPP-1	15,867,091.26	1,544,365.91	POND CREST	3,536.69
CPP-2	15,867,221.16	1,544,360.97	POND CREST	3,536.69
CPP-3	15,867,225.35	1,544,470.89	POND CREST	3,536.69
CPP-4	15,867,095.44	1,544,475.83	ACCESS ROAD TIE IN	3,536.69
CPP-5	15,867,071.93	1,544,475.80	ACCESS ROAD CREST	3,538.19
CPP-6	15,867,050.59	1,544,501.44	ACCESS ROAD CREST	3,540.34
CPP-7	15,867,024.94	1,544,485.09	ACCESS ROAD CREST	3,540.95
CPP-8	15,867,066.49	1,544,435.19	ACCESS ROAD TIE IN	3,536.78
CPP-9	15,867,106.81	1,544,380.33	POND CREST	3,536.69
CPP-10	15,867,206.74	1,544,376.53	POND CREST	3,536.69
CPP-11	15,867,209.79	1,544,456.47	POND CREST	3,536.69
CPP-12	15,867,109.86	1,544,460.27	POND CREST	3,536.69
CPP-13	15,867,130.15	1,544,401.96	POND TOE	3,527.69
CPP-14	15,867,185.12	1,544,399.87	POND TOE	3,527.69
CPP-15	15,867,186.45	1,544,434.84	POND TOE	3,527.69
CPP-16	15,867,131.49	1,544,436.93	POND TOE	3,527.69
CPP-17	15,867,130.92	1,544,421.94	SUMP CREST	3,527.69
CPP-18	15,867,145.91	1,544,421.37	SUMP CREST	3,527.69
CPP-19	15,867,146.48	1,544,436.36	SUMP CREST	3,527.69
CPP-20	15,867,107.49	1,544,397.95	CHANNEL TIE-IN	3,536.69
CPP-21	15,867,108.85	1,544,433.73	CHANNEL TIE-IN	3,536.69

LEGEND

- 3550 EXISTING GROUND (2 FT CONTOURS) (GENERAL NOTE 1)
- 3550 PROPOSED GRADING (2 FT CONTOURS)
- LIMITS OF UNDERDRAIN CHANNEL AND TSF BASIN LINING SYSTEM
- LIMITS OF POND LINING SYSTEM
- PERMANENT STORMWATER DIVERSION V-DITCH
- LIMITS OF REINFORCED CONCRETE ENCASED UNDERDRAIN PIPES
- UNDERDRAIN CHANNEL REFERENCE LINE
- LIMITS OF 80 MIL HDPE RUBSHEET

NOTE

1. STORMWATER LAYOUT PRESENTED ON SHEETS SW1 AND SW2.



0	2019-11-06	ISSUED FOR CONSTRUCTION	MDB	JRP	CJM	RAB
REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED

CLIENT
CALICO RESOURCES USA CORP.
GRASSY MOUNTAIN PROJECT
MALHEUR COUNTY, OREGON

CONSULTANT

CALICO
RESOURCES

GOLDER

GOLDER ASSOCIATES INC.
595 DOUBLE EAGLE COURT, SUITE 1000
RENO, NV 89521
USA
[+1] (775) 828-9604
www.golder.com

PROJECT
GRASSY MOUNTAIN
TAILINGS STORAGE FACILITY AND WASTE ROCK DUMP
DETAILED DESIGN

TITLE
RECLAIM POND LAYOUT

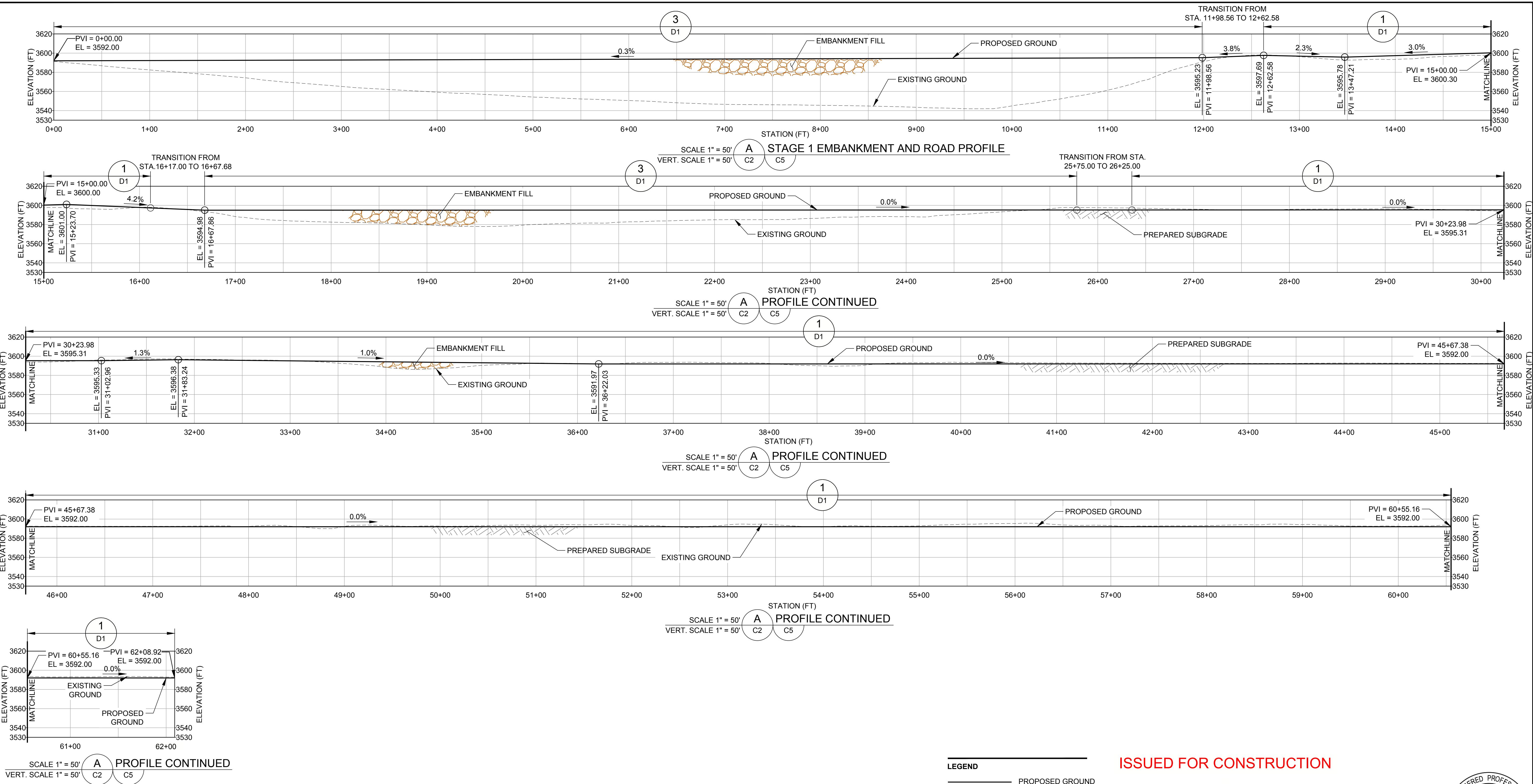
PROJECT NO.
1663241

REV.
0

7 of 42
DRAWING
C4

1 in IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI D

Path: \\verod\delm\DAI\663241_Grassy Mountain PFS\600_Drawing\PRODUCTION\CONSOLIDATED PERMIT | File Name: 1663241_C_010_UNDERDRAIN\LAYOUT\T&G\STAGING.dwg | Last Edited By: jgriffis Date: 2019-11-06 Time: 4:39:12 PM

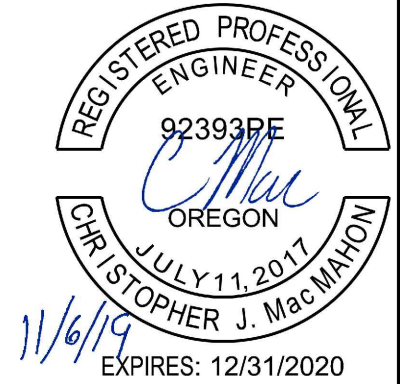


LEGEND

— PROPOSED GROUND

- - - EXISTING GROUND

ISSUED FOR CONSTRUCTION



0	2019-11-06	ISSUED FOR CONSTRUCTION	MDB	JRP	CJM	RAB
REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED

CLIENT

CALICO RESOURCES USA CORP.
GRASSY MOUNTAIN PROJECT
MALHEUR COUNTY, OREGON

CONSULTANT

GOLDER

GOLDER ASSOCIATES INC.
595 DOUBLE EAGLE COURT, SUITE 1000
RENO, NV 89521
USA
[+1] (775) 828-9604
www.golder.com

PROJECT

GRASSY MOUNTAIN
TAILINGS STORAGE FACILITY AND WASTE ROCK DUMP
DETAILED DESIGN

TITLE

EMBANKMENT AND ROAD PROFILE (1 OF 2)
STAGE 1

PROJECT NO.

1663241

REV.

0

9 of 42

DRAWING

C6A

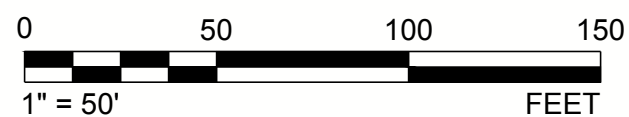
1 in IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI D

STAGE 1 EMBANKMENT AND ROAD CURVE TABLE								
CURVE	RADIUS (FT)	LENGTH (FT)	CHORD LENGTH (FT)	DELTA	CENTER (N)	CENTER (E)	START (N, E)	END (N, E)
C1	92.22	52.96	52.23	032°53'57.53"	15,866,586.62	1,544,258.98	(15,866,667.52,1,544,303.25)	(15866678.60,1544252.21)
C2	183.99	172.92	166.63	053°50'55.51"	15,866,469.59	1,543,918.94	(15,866,653.08,1,543,905.43)	(15866566.93,1543762.80)
C3	62.50	57.56	55.55	052°46'23.16"	15,865,780.48	1,543,078.04	(15,865,842.98,1,543,078.04)	(15865818.29,1543028.27)
C4	134.28	128.14	123.33	054°40'27.29"	15,865,468.76	1,542,931.37	(15,865,549.99,1,542,824.44)	(15865428.50,1542803.27)
C5	154.93	279.42	243.06	103°20'02.56"	15,865,239.60	1,543,025.05	(15,865,193.14,1,542,877.25)	(15865106.50,1543104.35)
C6	63.57	37.50	36.96	033°48'05.46"	15,865,136.92	1,543,279.62	(15,865,191.53,1,543,247.08)	(15865200.40,1543282.96)
C7	409.39	389.99	375.41	054°34'49.70"	15,865,600.60	1,543,468.19	(15,865,191.77,1,543,446.64)	(15865346.10,1543788.87)
C8	152.31	286.41	246.04	107°44'26.36"	15,865,340.99	1,543,979.26	(15,865,435.68,1,543,859.96)	(15865425.77,1544105.80)
C9	76.89	137.45	119.86	102°25'25.07"	15,865,423.22	1,544,200.06	(15,865,380.43,1,544,136.18)	(15865370.05,1544255.59)
C10	462.37	212.28	210.42	026°18'19.65"	15,865,173.19	1,544,707.24	(15,865,492.95,1,544,373.26)	(15865607.84,1544549.55)
C11	132.83	100.90	98.49	043°31'19.99"	15,865,834.73	1,544,785.43	(15,865,709.86,1,544,830.74)	(15865775.38,1544904.27)

STAGE 1 EMBANKMENT AND ROAD LINE TABLE				
LINE #	LENGTH (FT)	BEARING	START POINT (N, E)	END POINT (N, E)
L1	924.01	N61° 18' 31.78"W	(15,866,223.92, 1,545,113.81)	(15,866,667.52, 1,544,303.25)
L2	347.71	S85° 47' 30.69"W	(15,866,678.60, 1,544,252.21)	(15,866,653.08, 1,543,905.43)
L3	479.64	S43° 46' 40.21"W	(15,866,189.31, 1,543,527.36)	(15,865,842.99, 1,543,195.51)
L4	117.47	S89° 59' 50.46"W	(15,865,842.99, 1,543,195.51)	(15,865,842.98, 1,543,078.04)
L5	336.94	S37° 13' 27.30"W	(15,865,818.29, 1,543,028.27)	(15,865,549.99, 1,542,824.44)
L6	114.36	N38° 26' 13.21"E	(15,865,346.10, 1,543,788.87)	(15,865,435.68, 1,543,859.96)
L7	54.58	S33° 49' 20.43"E	(15,865,425.77, 1,544,105.80)	(15,865,380.43, 1,544,136.18)
L8	170.15	N43° 3' 45.14"E	(15,865,370.05, 1,544,255.59)	(15,865,492.95, 1,544,373.26)
L9	299.12	N70° 03' 34.15"E	(15,865,607.84, 1,544,549.55)	(15,865,709.86, 1,544,830.74)
L10	487.62	N26° 32' 14.16"E	(15,865,775.38, 1,544,904.27)	(15,866,211.62, 1,545,122.13)
L11	166.15	N59° 12' 57.46"E	(15,865,106.50, 1,543,104.35)	(15,865,191.53, 1,543,247.08)

STAGE 1 EMBANKMENT AND ROAD LINE TABLE				
LINE #	LENGTH (FT)	BEARING	START POINT (N, E)	END POINT (N, E)
L12	246.71	S17° 26' 59.98"E	(15,865,428.50, 1,542,803.27)	(15,865,193.14, 1,542,877.25)
L13	445.02	S31° 56' 35.18"W	(15,866,566.93, 1,543,762.80)	(15,866,189.31, 1,543,527.36)
L14	163.91	S86° 58' 57.08"E	(15,865,200.40, 1,543,282.96)	(15,865,191.77, 1,543,446.64)

ISSUED FOR CONSTRUCTION



1/6/19

0	2019-11-06	ISSUED FOR CONSTRUCTION	MDB	JRP	CJM	RAB
REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED

CLIENT
CALICO RESOURCES USA CORP.
GRASSY MOUNTAIN PROJECT
MALHEUR COUNTY, OREGON



CONSULTANT



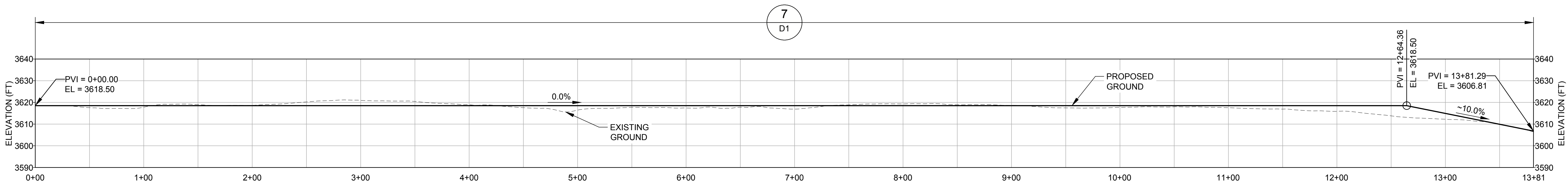
GOLDER ASSOCIATES INC.
595 DOUBLE EAGLE COURT, SUITE 1000
RENO, NV 89521
USA
[+1] (775) 828-9604
www.golder.com

PROJECT
GRASSY MOUNTAIN
TAILINGS STORAGE FACILITY AND WASTE ROCK DUMP
DETAILED DESIGN

TITLE
EMBANKMENT AND ROAD PROFILE (2 OF 2)
STAGE 1

PROJECT NO. 1663241	REV. 0	10 of 42	DRAWING C6B
------------------------	-----------	----------	----------------

Path: \\verod\del\MDA\166324\Grassy Mountain\PF\600_Drawings\PRODUCTION\CONSOLIDATED PERMIT | File Name: 166324_L_C_001_Foundation layout and grading.dwg | Last Edited By: jspine Date: 2019-11-06 Time: 3:30:05 PM | Printed By: jspine Date: 2019-11-06 Time: 4:39:54 PM



SCALE 1" = 50'
VERT. SCALE 1" = 25'

B PERMANENT ACCESS ROAD PROFILE
C5

PERMANENT ACCESS ROAD LINE TABLE				
LINE #	LENGTH (FT)	BEARING	START POINT (N, E)	END POINT (N, E)
L1	12.36	N35° 51' 16.75"E	(15,865,360.90, 1,544,564.53)	(15,865,370.92, 1,544,571.77)
L2	311.33	N60° 45' 46.62"E	(15,865,433.45, 1,544,641.97)	(15,865,585.51, 1,544,913.64)
L3	68.92	N41° 11' 19.78"E	(15,865,685.19, 1,545,036.63)	(15,865,737.05, 1,545,082.02)
L4	224.42	N25° 29' 05.33"E	(15,865,806.10, 1,545,127.44)	(15,866,008.69, 1,545,224.00)
L5	181.60	N49° 11' 21.86"E	(15,866,061.44, 1,545,264.24)	(15,866,180.12, 1,545,401.69)
L6	39.82	N19° 15' 00.00"E	(15,866,193.36, 1,545,410.69)	(15,866,230.95, 1,545,423.82)
L7	57.92	N30° 23' 56.09"E	(15,866,245.81, 1,545,430.69)	(15,866,295.77, 1,545,460.00)
L8	5.48	N43° 26' 38.87"W	(15,866,335.85, 1,545,455.41)	(15,866,339.83, 1,545,451.64)

PERMANENT ACCESS ROAD CURVE TABLE								
CURVE #	RADIUS (FT)	LENGTH (FT)	CHORD LENGTH (FT)	DELTA	CENTER (N)	CENTER (E)	START POINT (N, E)	END POINT (N, E)
C1	217.96	94.75	94.01	024°54'29.87"	15,865,243.25	1,544,748.43	(15,865,370.92, 1,544,571.77)	(15,865,433.45, 1,544,641.97)
C2	465.67	159.09	158.31	019°34'26.84"	15,865,991.85	1,544,686.20	(15,865,585.51, 1,544,913.64)	(15,865,685.19, 1,545,036.63)
C3	302.48	82.91	82.65	015°42'14.45"	15,865,936.25	1,544,854.38	(15,865,737.05, 1,545,082.02)	(15,865,806.10, 1,545,127.44)
C4	161.50	66.82	66.34	023°42'16.53"	15,865,939.20	1,545,369.79	(15,866,008.69, 1,545,224.00)	(15,866,061.44, 1,545,264.24)
C5	30.99	16.19	16.01	029°56'21.86"	15,866,203.58	1,545,381.43	(15,866,180.12, 1,545,401.69)	(15,866,193.36, 1,545,410.69)
C6	84.27	16.40	16.37	011°08'56.09"	15,866,203.17	1,545,503.37	(15,866,230.95, 1,545,423.82)	(15,866,245.81, 1,545,430.69)
C7	33.58	43.28	40.35	073°50'34.96"	15,866,312.76	1,545,431.03	(15,866,295.77, 1,545,460.00)	(15,866,335.85, 1,545,455.41)

LEGEND

———— PROPOSED GROUND

- - - - - EXISTING GROUND

0 25 50

1" = 25' FEET

0 50 100

1" = 50' FEET

ISSUED FOR CONSTRUCTION



0	2019-11-06	ISSUED FOR CONSTRUCTION	MDB	JRP	CJM	RAB
REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED

CLIENT

CALICO RESOURCES USA CORP.
GRASSY MOUNTAIN PROJECT
MALHEUR COUNTY, OREGON

CONSULTANT

CALICO RESOURCES

GOLDER

GOLDER ASSOCIATES INC.
595 DOUBLE EAGLE COURT, SUITE 1000
RENO, NV 89521
USA
[+1] (775) 828-9604
www.golder.com

PROJECT

GRASSY MOUNTAIN
TAILINGS STORAGE FACILITY AND WASTE ROCK DUMP
DETAILED DESIGN

TITLE

PERMANENT ACCESS ROAD PROFILE

PROJECT NO.

1663241

REV.

0

11 of 42

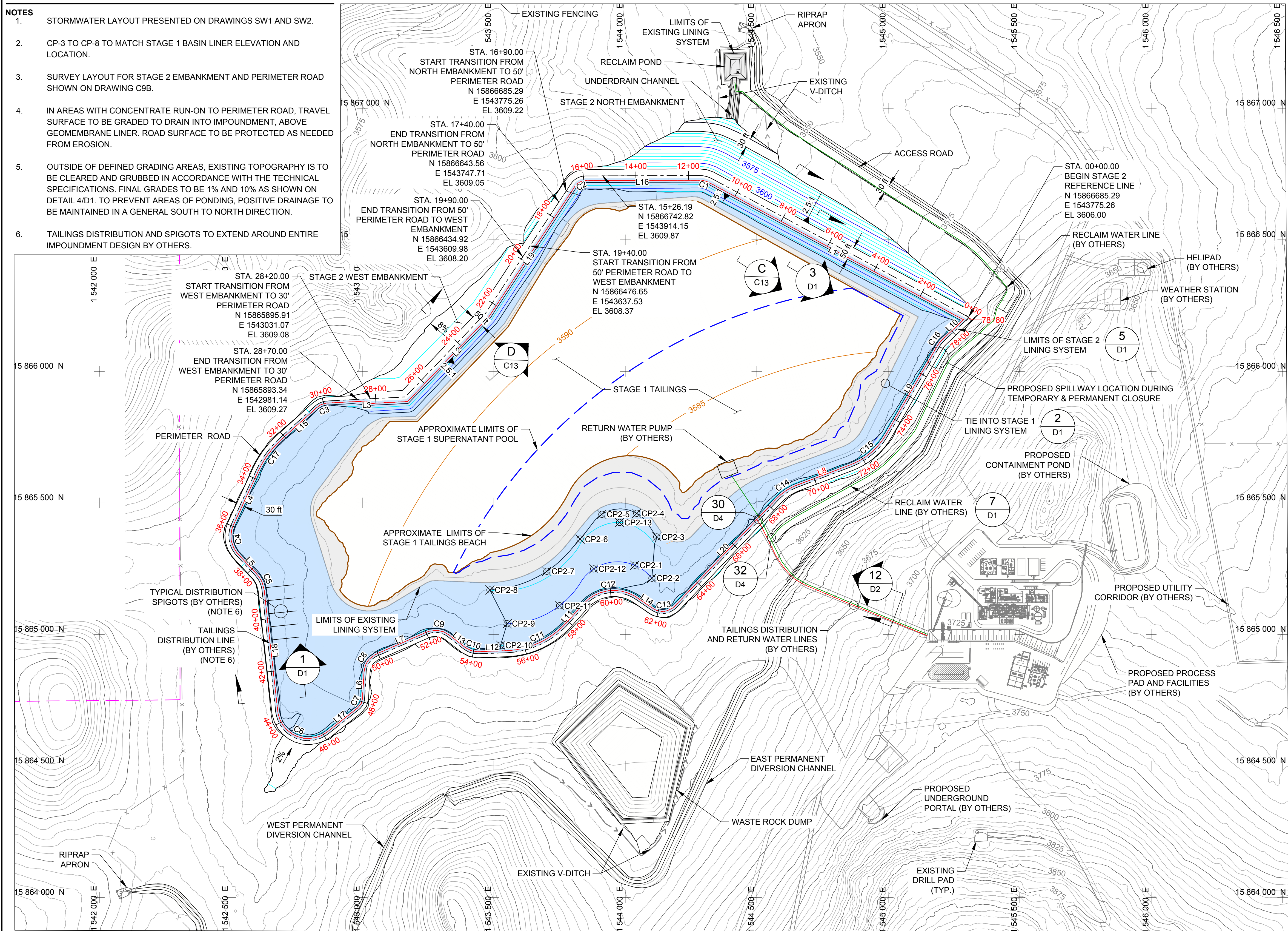
DRAWING

C7

1 in IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI D

Path: \\verod\delm\DAI1662241_Grassy Mountain PFS\600_Drawing\PRODUCTION\CONSOLIDATED PERMIT File Name: C:\PHASE 2 TAILINGS FACILITY.dwg | Last Edited By: jerrine Date: 2019-11-08 Time: 3:33:48 PM | Printed By: jerrine Date: 2019-11-08 Time: 4:41:45 PM

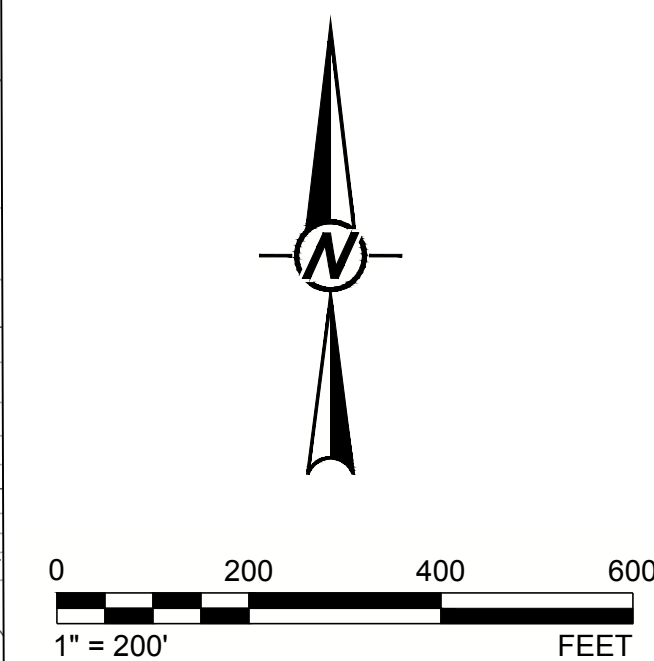
- NOTES**
- STORMWATER LAYOUT PRESENTED ON DRAWINGS SW1 AND SW2.
 - CP-3 TO CP-8 TO MATCH STAGE 1 BASIN LINER ELEVATION AND LOCATION.
 - SURVEY LAYOUT FOR STAGE 2 EMBANKMENT AND PERIMETER ROAD SHOWN ON DRAWING C9B.
 - IN AREAS WITH CONCENTRATE RUN-ON TO PERIMETER ROAD, TRAVEL SURFACE TO BE GRADED TO DRAIN INTO IMPOUNDMENT, ABOVE GEOMEMBRANE LINER. ROAD SURFACE TO BE PROTECTED AS NEEDED FROM EROSION.
 - OUTSIDE OF DEFINED GRADING AREAS, EXISTING TOPOGRAPHY IS TO BE CLEARED AND GRUBBED IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS. FINAL GRADES TO BE 1% AND 10% AS SHOWN ON DETAIL 4/D1. TO PREVENT AREAS OF PONDING, POSITIVE DRAINAGE TO BE MAINTAINED IN A GENERAL SOUTH TO NORTH DIRECTION.
 - TAILINGS DISTRIBUTION AND SPIGOTS TO EXTEND AROUND ENTIRE IMPOUNDMENT DESIGN BY OTHERS.



- LEGEND**
- EXISTING GROUND (5 FT CONTOURS) (GENERAL NOTE 1)
 - PROPOSED GRADING (5 FT CONTOURS)
 - STAGE 1 TAILINGS SURFACE (5 FT CONTOURS)
 - TAILINGS DISTRIBUTION LINE (BY OTHERS)
 - RETURN AND RECLAIM WATERS LINE (BY OTHERS)
 - PROJECT BOUNDARY
 - APPROXIMATE LIMITS OF STAGE 1 TAILINGS BEACH
 - LIMITS OF EXISTING LINING SYSTEM
 - LIMITS OF STAGE 2 LINING SYSTEM
 - EXISTING V-DITCH
 - APPROXIMATE LIMITS OF SUPERNATANT POOL
 - EXISTING FENCING
 - STAGE 2 REFERENCE LINE (NOTE 3)
- 5 D1
- A C9A

STAGE 2 BASIN GRADING CONTROL POINTS (NOTE 2)			
POINT NO.	NORTHING (FT)	EASTING (FT)	ELEVATION (FT)
CP2-1	15,865,262.95	1,544,036.20	3,600.00
CP2-2	15,865,213.74	1,544,100.94	3,600.00
CP2-3	15,865,370.74	1,544,119.44	3,593.86
CP2-4	15,865,460.29	1,544,043.31	3,593.17
CP2-5	15,865,456.37	1,543,910.81	3,593.41
CP2-6	15,865,362.28	1,543,828.02	3,594.48
CP2-7	15,865,240.02	1,543,701.34	3,593.91
CP2-8	15,865,169.09	1,543,485.20	3,595.00
CP2-9	15,865,040.87	1,543,550.93	3,600.00
CP2-10	15,864,959.52	1,543,525.66	3,605.00
CP2-11	15,865,109.10	1,543,750.00	3,600.00
CP2-12	15,865,249.16	1,543,879.91	3,600.00
CP2-13	15,865,425.73	1,543,978.16	3,595.00

ISSUED FOR CONSTRUCTION



0	2019-11-06	ISSUED FOR CONSTRUCTION	MDB	JRP	CJM	RAB
REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED

CLIENT
CALICO RESOURCES USA CORP.
GRASSY MOUNTAIN PROJECT
MALHEUR COUNTY, OREGON

CONSULTANT

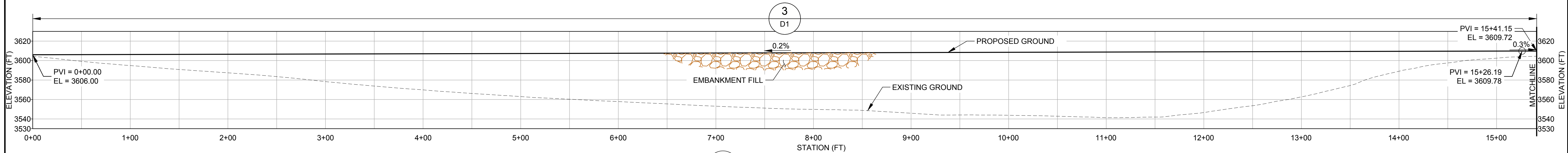
CALICO
RESOURCES

GOLDER

GOLDER ASSOCIATES INC.
595 DOUBLE EAGLE COURT, SUITE 1000
RENO, NV 89521
USA
[+1] (775) 828-9604
www.golder.com

PROJECT GRASSY MOUNTAIN TAILINGS STORAGE FACILITY AND WASTE ROCK DUMP DETAILED DESIGN	TITLE TAILINGS STORAGE FACILITY LAYOUT STAGE 2
PROJECT NO. 1663241	REV. 0 12 of 42 DRAWING C8

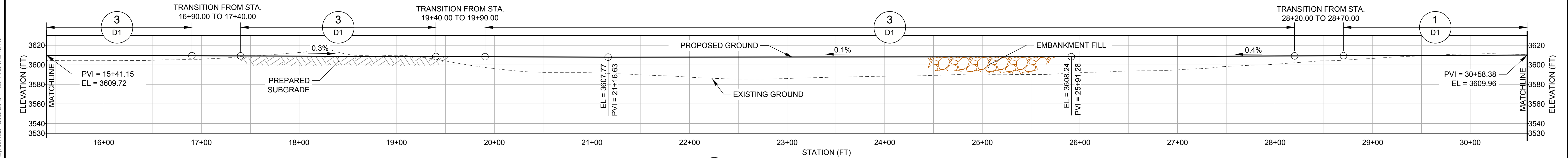
Path: \\verod\del\MDA\1663241_Grassy Mountain PFS\600_Drawing\PRODUCTION\CONSOLIDATED PERMIT | File Name: 1663241_C_STAGE 2 PROFILE.dwg | Last Edited By: jspice Date: 2019-11-06 Time: 9:54 AM | Printed By: jspice Date: 2019-11-06 Time: 4:42 PM



SCALE 1" = 50'
VERT. SCALE 1" = 50'

A
C8

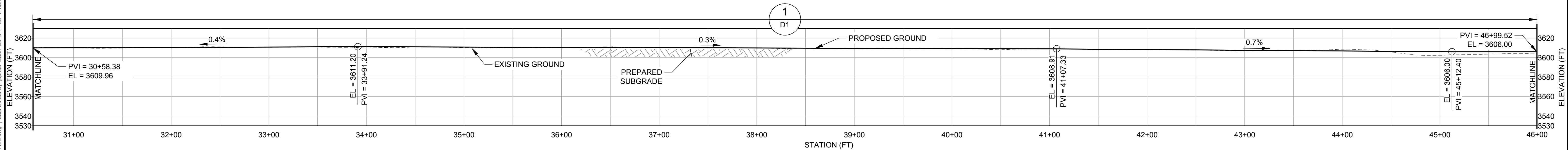
STAGE 2 EMBANKMENT AND ROAD PROFILE



SCALE 1" = 50'
VERT. SCALE 1" = 50'

A
C8

PROFILE CONTINUED



SCALE 1" = 50'
VERT. SCALE 1" = 50'

A
C8

PROFILE CONTINUED

LEGEND

— PROPOSED GROUND

- - - EXISTING GROUND

ISSUED FOR CONSTRUCTION



0	2019-11-06	ISSUED FOR CONSTRUCTION	MDB	JRP	CJM	RAB
REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED

CLIENT

CALICO RESOURCES USA CORP.
GRASSY MOUNTAIN PROJECT
MALHEUR COUNTY, OREGON

CONSULTANT

GOLDER

GOLDER ASSOCIATES INC.
595 DOUBLE EAGLE COURT, SUITE 1000
RENO, NV 89521
USA
[+1] (775) 828-9604
www.golder.com

PROJECT

GRASSY MOUNTAIN
TAILINGS STORAGE FACILITY AND WASTE ROCK DUMP
DETAILED DESIGN

TITLE

EMBANKMENT AND ROAD PROFILE (1 OF 2)
STAGE 2

PROJECT NO.

1663241

REV.

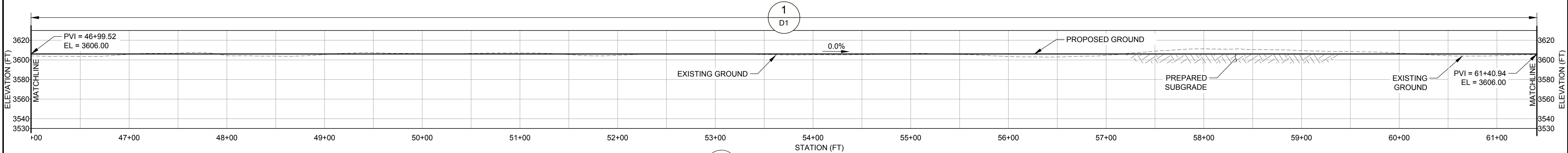
0

13 of 42

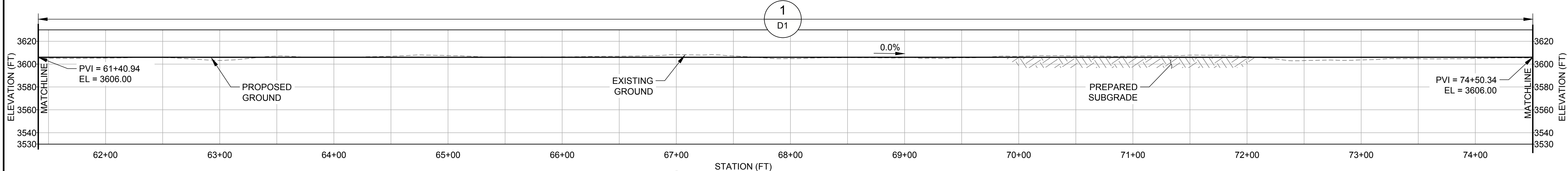
DRAWING

C9A

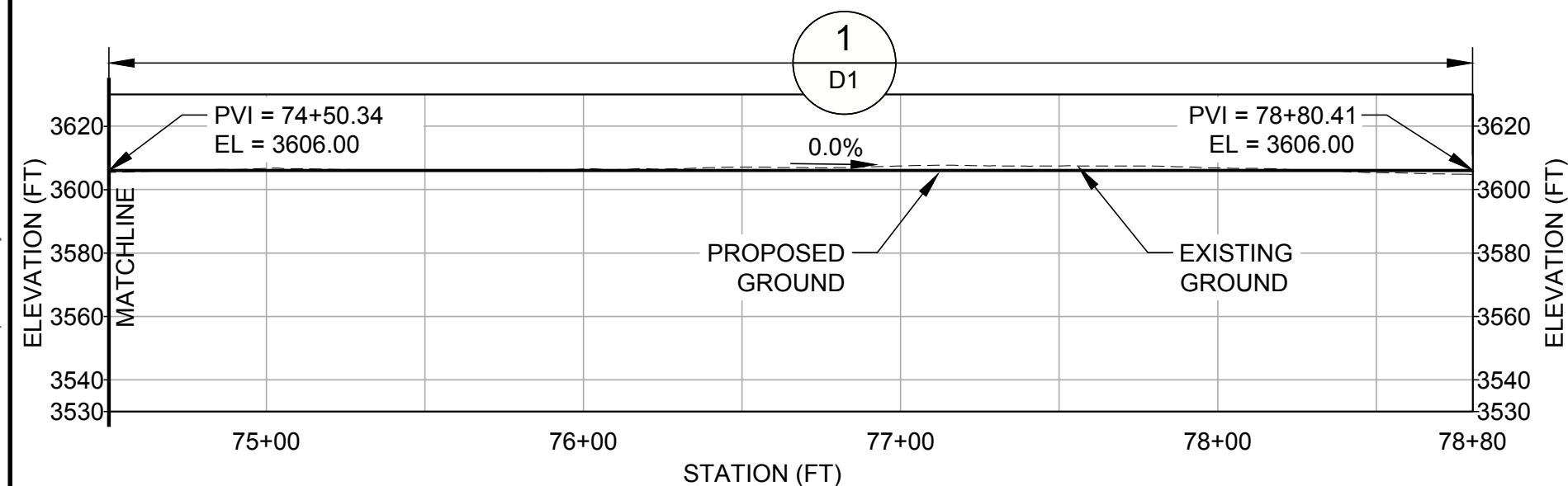
Path: \\verod\delm\DAI1663241_Grassy Mountain PFS\600_Drawing\PRODUCTION\CONSOLIDATED PERMIT - File Name: 1663241_C_STAGE 2 PROFILE.dwg | Last Edited By: jprince Date: 2019-11-06 Time: 9:19:54 AM | Printed By: jprince Date: 2019-11-06 Time: 4:43:09 PM



SCALE 1" = 50'
VERT. SCALE 1" = 50' **A** C8 **STAGE 2 EMBANKMENT AND ROAD PROFILE**



SCALE 1" = 50'
VERT. SCALE 1" = 50' **A** C8 **PROFILE CONTINUED**



SCALE 1" = 50'
VERT. SCALE 1" = 50' **A** C8 **PROFILE CONTINUED**

STAGE 2 EMBANKMENT AND ROAD LINE TABLE				
LINE #	LENGTH (FT)	BEARING	START POINT (N, E)	END POINT (N, E)
L1	1108.32	N61° 39' 57.22"W	(15,866,206.04, 1,545,305.58)	(15,866,732.07, 1,544,330.04)
L2	439.49	S43° 49' 19.75"W	(15,866,219.84, 1,543,468.01)	(15,865,902.75, 1,543,163.69)
L3	296.39	S87° 02' 46.97"W	(15,865,902.75, 1,543,163.69)	(15,865,887.48, 1,542,867.69)
L4	225.49	S24° 44' 42.64"W	(15,865,624.21, 1,542,596.87)	(15,865,419.43, 1,542,502.48)
L5	104.90	S42° 57' 52.02"E	(15,865,300.34, 1,542,521.58)	(15,865,223.58, 1,542,593.07)
L6	101.81	N3° 14' 04.89"E	(15,864,756.70, 1,543,008.92)	(15,864,858.35, 1,543,014.67)
L7	209.44	N66° 29' 45.38"E	(15,864,918.18, 1,543,056.35)	(15,865,001.71, 1,543,248.41)
L8	219.21	N69° 11' 47.36"E	(15,865,559.63, 1,544,654.54)	(15,865,637.49, 1,544,859.46)
L9	389.78	N30° 03' 21.90"E	(15,865,756.03, 1,544,998.88)	(15,866,093.40, 1,545,194.10)
L10	130.77	N46° 46' 22.22"E	(15,866,113.59, 1,545,210.11)	(15,866,203.15, 1,545,305.39)

STAGE 2 EMBANKMENT AND ROAD LINE TABLE				
LINE #	LENGTH (FT)	BEARING	START POINT (N, E)	END POINT (N, E)
L11	92.30	N41° 51' 24.16"E	(15,865,041.50, 1,543,784.62)	(15,865,110.25, 1,543,846.21)
L12	104.60	N88° 00' 26.86"E	(15,864,926.70, 1,543,442.42)	(15,864,930.33, 1,543,546.95)
L13	77.19	S52° 17' 22.95"E	(15,864,992.22, 1,543,324.52)	(15,864,945.01, 1,543,385.59)
L14	73.42	S55° 42' 08.00"E	(15,865,133.75, 1,544,039.78)	(15,865,092.38, 1,544,100.43)
L15	178.90	S47° 58' 08.24"W	(15,865,868.23, 1,542,821.20)	(15,865,748.46, 1,542,688.32)
L16	432.14	S89° 45' 53.02"W	(15,866,744.33, 1,544,281.04)	(15,866,742.55, 1,543,848.90)
L17	146.74	N51° 40' 35.78"E	(15,864,623.29, 1,542,871.76)	(15,864,714.28, 1,542,986.88)
L18	463.16	S6° 24' 42.32"E	(15,865,167.41, 1,542,618.89)	(15,864,707.15, 1,542,670.61)
L19	590.21	S33° 25' 46.23"W	(15,866,712.41, 1,543,793.16)	(15,866,219.84, 1,543,468.01)
L20	563.82	N43° 28' 35.63"E	(15,865,102.45, 1,544,194.47)	(15,865,511.60, 1,544,582.41)

STAGE 2 EMBANKMENT AND ROAD CURVE TABLE							
CURVE #	RADIUS (FT)	LENGTH (FT)	CHORD LENGTH (FT)	DELTA	CENTER (N)	CENTER (E)	START POINT (N, E)
C1	102.36	51.04	50.51	028°34'09.76"	15,866,641.97	1,544,281.46	(15,866,732.07, 1,544,330.04)
C2	67.12	66.00	63.37	056°20'06.79"	15,866,675.43	1,543,849.18	(15,866,742.55, 1,543,848.90)
C3	75.22	51.30	50.32	039°04'38.73"	15,865,812.36	1,542,871.57	(15,865,887.48, 1,542,867.69)
C4	108.25	127.92	120.61	067°42'34.66"	15,865,374.12	1,542,600.79	(15,865,419.43, 1,542,502.48)
C5	98.56	62.88	61.82	036°33'09.71"	15,865,156.40	1,542,520.95	(15,865,223.58, 1,542,593.07)
C6	124.64	265.20	217.92	121°54'41.90"	15,864,721.07	1,542,794.47	(15,864,707.15, 1,542,670.61)
C7	58.26	49.26	47.80	048°26'30.90"	15,864,759.99	1,542,950.75	(15,864,714.28, 1,542,986.88)
C8	69.51	76.75	72.91	063°15'40.49"	15,864,854.43	1,543,084.07	(15,864,858.35, 1,543,014.67)
C9	75.32	80.48	76.70	061°12'51.68"	15,864,932.63	1,543,278.45	(15,865,001.71, 1,543,248.41)
C10	87.91	60.91	59.70	039°42'10.19"	15,865,014.55	1,543,439.36	(15,864,945.01, 1,543,385.59)

STAGE 2 EMBANKMENT AND ROAD CURVE TABLE							
CURVE #	RADIUS (FT)	LENGTH (FT)	CHORD LENGTH (FT)	DELTA	CENTER (N)	CENTER (E)	START POINT (N, E)
C11	334.72	269.61	262.38	046°09'02.71"	15,865,264.85	1,543,535.32	(15,864,930.33, 1,543,546.95)
C12	147.95	212.88	194.99	082°26'27.84"	15,865,011.53	1,543,956.41	(15,865,110.25, 1,543,846.21)
C13	72.95	102.90	94.58	080°49'16.37"	15,865,152.65	1,544,141.53	(15,865,092.38, 1,544,100.43)
C14	194.68	87.39	86.66	025°43'11.73"	15,865,377.65	1,544,723.68	(15,865,511.60, 1,544,582.41)
C15	273.18	186.61	183.01	039°08'25.46"	15,865,892.85	1,544,762.43	(15,865,637.49, 1,544,859.46)
C16	88.62	25.86	25.77	016°43'00.32"	15,866,049.01	1,545,270.80	(15,866,093.40, 1,545,194.10)
C17	383.24	155.34	154.28	023°13'25.60"	15,865,463.79	1,542,944.91	(15,865,748.46, 1,542,688.32)

LEGEND
—— PROPOSED GROUND
- - - - EXISTING GROUND

ISSUED FOR CONSTRUCTION



0	2019-11-06	ISSUED FOR CONSTRUCTION	MDB	JRP	CJM	RAB
REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED

CLIENT
CALICO RESOURCES USA CORP.
GRASSY MOUNTAIN PROJECT
MALHEUR COUNTY, OREGON



CONSULTANT



GOLDER ASSOCIATES INC.
595 DOUBLE EAGLE COURT, SUITE 1000
RENO, NV 89521
USA
[+1] (775) 828-9604
www.golder.com

PROJECT
GRASSY MOUNTAIN
TAILINGS STORAGE FACILITY AND WASTE ROCK DUMP
DETAILED DESIGN

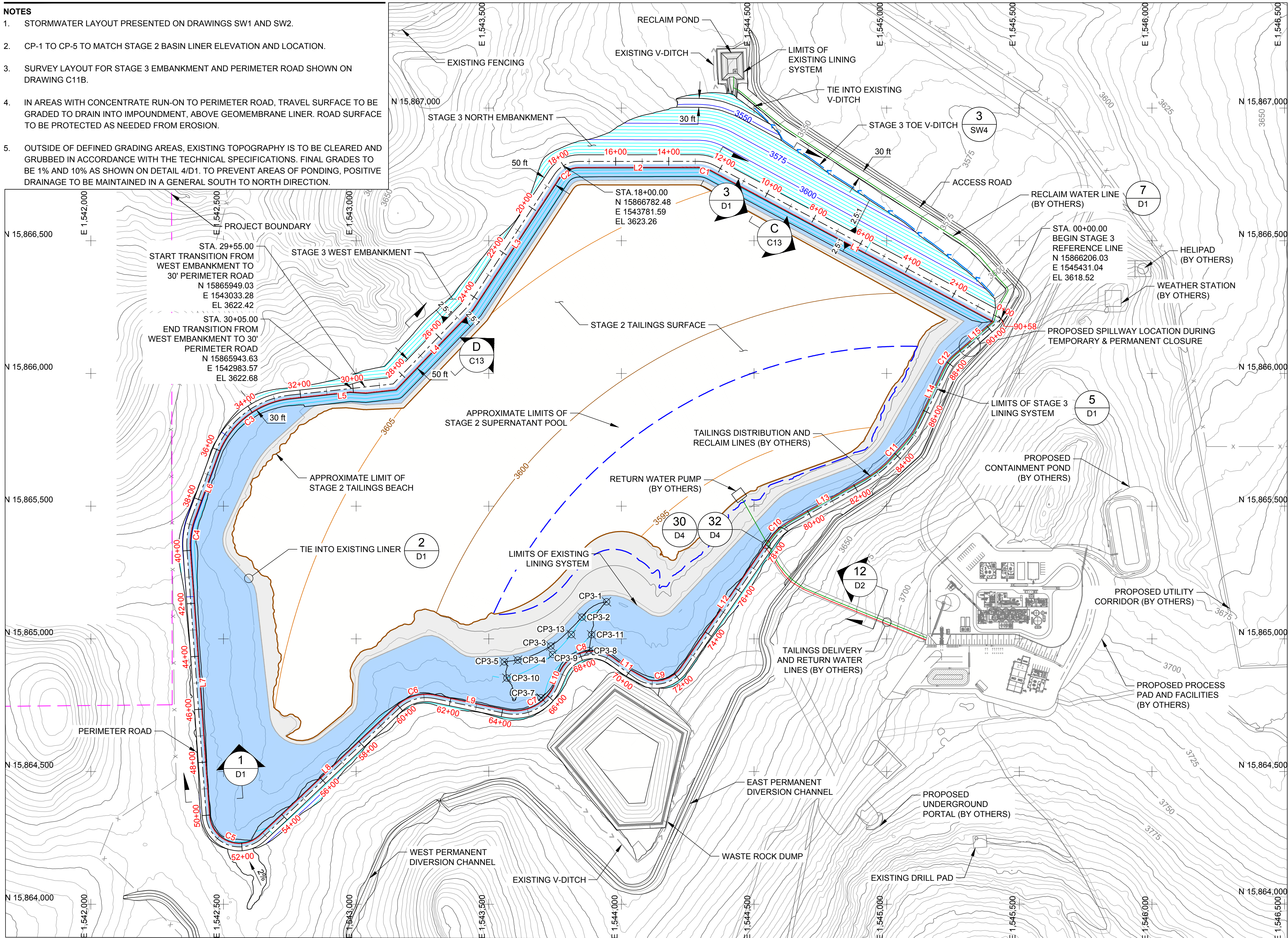
TITLE
EMBANKMENT AND ROAD PROFILE (2 OF 2)
STAGE 2

PROJECT NO. 1663241
REV. 0
14 of 42
DRAWING C9B



1 in IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI D

- NOTES**
1. STORMWATER LAYOUT PRESENTED ON DRAWINGS SW1 AND SW2.
 2. CP-1 TO CP-5 TO MATCH STAGE 2 BASIN LINER ELEVATION AND LOCATION.
 3. SURVEY LAYOUT FOR STAGE 3 EMBANKMENT AND PERIMETER ROAD SHOWN ON DRAWING C11B.
 4. IN AREAS WITH CONCENTRATE RUN-ON TO PERIMETER ROAD, TRAVEL SURFACE TO BE GRADED TO DRAIN INTO IMPOUNDMENT, ABOVE GEOMEMBRANE LINER. ROAD SURFACE TO BE PROTECTED AS NEEDED FROM EROSION.
 5. OUTSIDE OF DEFINED GRADING AREAS, EXISTING TOPOGRAPHY IS TO BE CLEARED AND GRUBBED IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS. FINAL GRADES TO BE 1% AND 10% AS SHOWN ON DETAIL 4/D1. TO PREVENT AREAS OF PONDING, POSITIVE DRAINAGE TO BE MAINTAINED IN A GENERAL SOUTH TO NORTH DIRECTION.

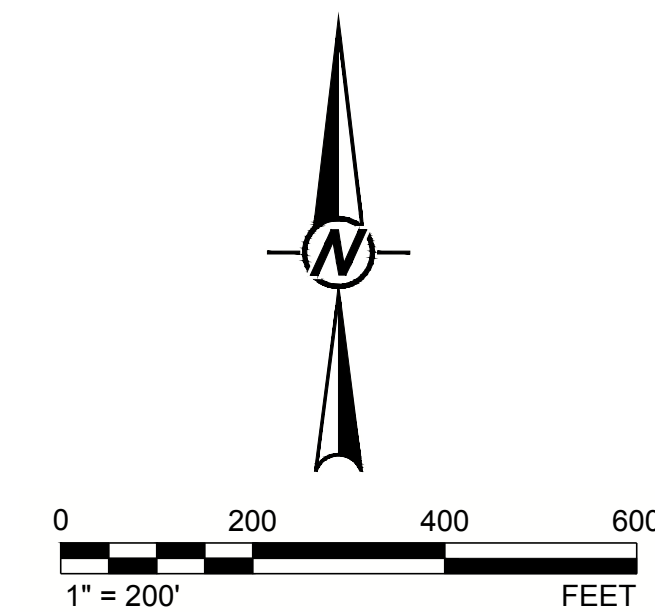


- LEGEND**
- 3600 — EXISTING GROUND (5 FT CONTOURS) (GENERAL NOTE 1)
 - 3600 — PROPOSED GRADING (5 FT CONTOURS)
 - 3600 — STAGE 2 TAILINGS SURFACE (5 FT CONTOURS)
 - TAILINGS DISTRIBUTION LINE (BY OTHERS)
 - RECLAIM WATER LINE (BY OTHERS)
 - APPROXIMATE LIMITS OF STAGE 2 TAILINGS BEACH
 - LIMITS OF EXISTING LINING SYSTEM
 - LIMITS OF STAGE 3 LINING SYSTEM
 - PROJECT BOUNDARY
 - EXISTING V-DITCH
 - PERMANENT V-DITCH
 - APPROXIMATE LIMITS OF SUPERNATANT POOL
 - EXISTING FENCING
 - STAGE 3 REFERENCE LINE (NOTE 3)

STAGE 3 BASIN GRADING CONTROL POINTS

POINT NO.	NORTHING (FT)	EASTING (FT)	ELEVATION (FT)
CP3-1	15,865,139.60	1,543,944.04	3,607.64
CP3-2	15,865,081.63	1,543,850.95	3,609.05
CP3-3	15,864,972.99	1,543,733.71	3,607.28
CP3-4	15,864,919.99	1,543,609.09	3,606.94
CP3-5	15,864,913.47	1,543,558.28	3,606.99
CP3-7	15,864,778.03	1,543,696.58	3,614.28
CP3-8	15,864,955.74	1,543,877.48	3,618.21
CP3-9	15,864,941.32	1,543,740.56	3,610.00
CP3-10	15,864,852.20	1,543,568.02	3,610.00
CP3-11	15,865,015.83	1,543,887.30	3,615.00
CP3-13	15,865,016.46	1,543,810.93	3,610.00

ISSUED FOR CONSTRUCTION



0 2019-11-06 ISSUED FOR CONSTRUCTION

REV. YYYY-MM-DD DESCRIPTION

MDB JRP CJM RAB

DESIGNED PREPARED REVIEWED APPROVED

CLIENT
CALICO RESOURCES USA CORP.
GRASSY MOUNTAIN PROJECT
MALHEUR COUNTY, OREGON

CONSULTANT



GOLDER ASSOCIATES INC.
595 DOUBLE EAGLE COURT, SUITE 1000
RENO, NV 89521
USA
[+1] (775) 828-9604
www.golder.com

PROJECT
GRASSY MOUNTAIN
TAILINGS STORAGE FACILITY AND WASTE ROCK DUMP
DETAILED DESIGN

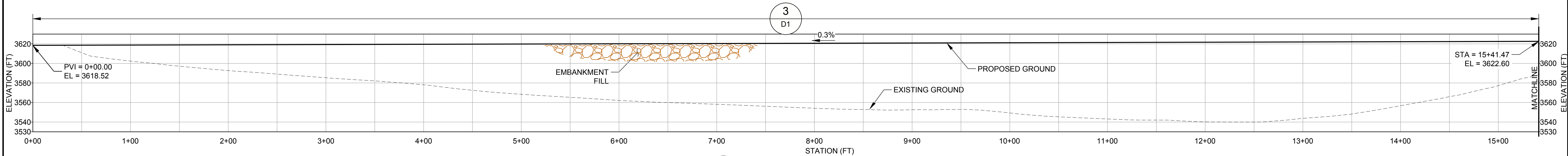
TITLE
TAILINGS STORAGE FACILITY LAYOUT
STAGE 3

PROJECT NO.
1663241

REV. 0 15 of 42

DRAWING
C10

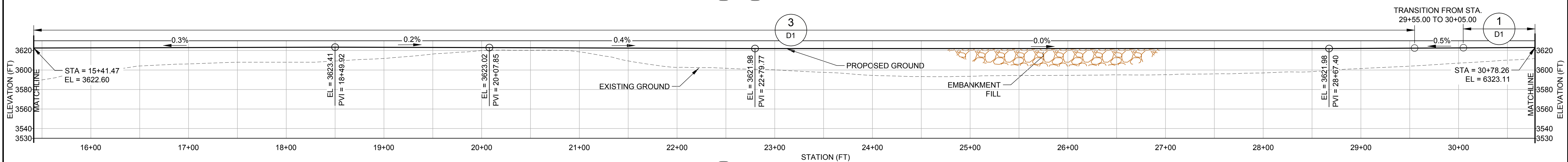
Path: \\verod\del\MDA\1663241_Grassy Mountain PFS\600_Drawing\PRODUCTION\CONSOLIDATED PERMIT - File Name: 1663241_C_STAGE 3 PROFILE.dwg | Last Edited By: jpricis Date: 2019-11-06 Time: 10:15:08 AM | Printed By: jpricis Date: 2019-11-06 Time: 4:46:09 PM



SCALE 1" = 50'
VERT. SCALE 1" = 50'

A
C2 C10

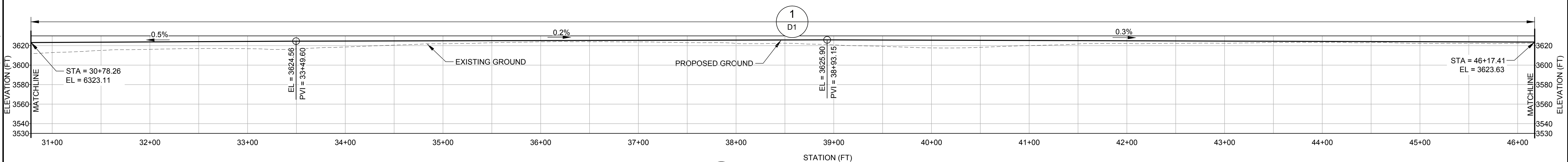
STAGE 3 EMBANKMENT AND ROAD PROFILE



SCALE 1" = 50'
VERT. SCALE 1" = 50'

A
C2 C10

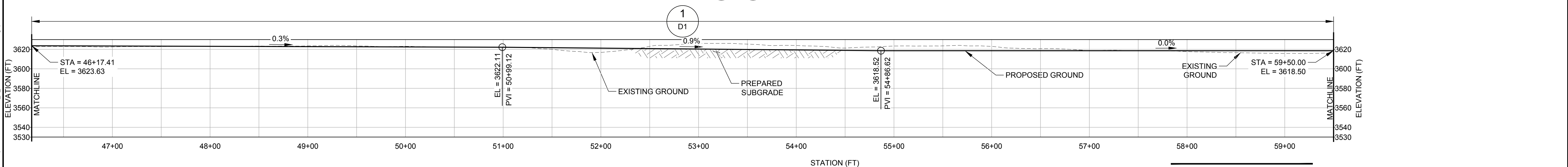
PROFILE CONTINUED



SCALE 1" = 50'
VERT. SCALE 1" = 50'

A
C2 C10

PROFILE CONTINUED



SCALE 1" = 50'
VERT. SCALE 1" = 50'

A
C2 C10

PROFILE CONTINUED

LEGEND

— PROPOSED GROUND

- - - EXISTING GROUND

ISSUED FOR CONSTRUCTION



0	2019-11-06	ISSUED FOR CONSTRUCTION	MDB	JRP	CJM	RAB
REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED

CLIENT
CALICO RESOURCES USA CORP.
GRASSY MOUNTAIN PROJECT
MALHEUR COUNTY, OREGON



CONSULTANT
GOLDER ASSOCIATES INC.
595 DOUBLE EAGLE COURT, SUITE 1000
RENO, NV 89521
USA
[+1] (775) 828-9604
www.golder.com

PROJECT
GRASSY MOUNTAIN
TAILINGS STORAGE FACILITY AND WASTE ROCK DUMP
DETAILED DESIGN

TITLE
EMBANKMENT AND ROAD PROFILE (1 OF 2)
STAGE 3

PROJECT NO.
1663241

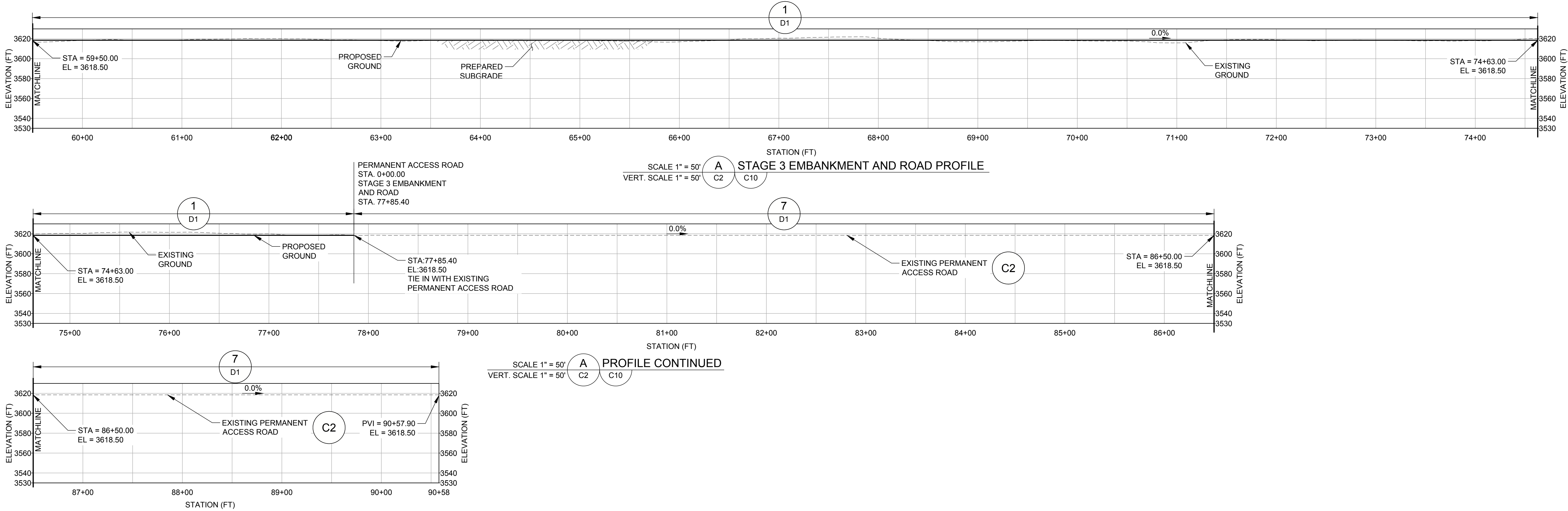
REV.
0

16 OF 42

DRAWING
C11A

1 in IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM A NS/D

Path: \\verod\del\MDA\1663241_Grassy Mountain PFS\600_Drawing\PRODUCTION\CONSOLIDATED PERMIT | File Name: 1663241_C_STAGE 3 PROFILE.dwg | Last Edited By: jpricce Date: 2019-11-06 Time: 10:15:08 AM | Printed By: jpricce Date: 2019-11-06 Time: 4:46:37 PM



STAGE 3 EMBANKMENT AND ROAD CURVE TABLE								
CURVE #	RADIUS (FT)	LENGTH (FT)	CHORD LENGTH (FT)	DELTA	CENTER (N)	CENTER (E)	START POINT (N, E)	END POINT (N, E)
C1	130.55	64.3	63.62	028°12'14.52"	15,866,668.81	1,544,288.90	(15,866,783.92, 1,544,350.48)	(15,866,799.35, 1,544,288.76)
C2	108.32	107.1	102.80	056°39'27.37"	15,866,690.57	1,543,838.33	(15,866,798.89, 1,543,838.22)	(15,866,750.01, 1,543,747.78)
C3	339.28	377.3	358.15	063°42'58.23"	15,865,580.97	1,542,786.53	(15,865,918.26, 1,542,749.91)	(15,865,697.49, 1,542,467.90)
C4	288.75	122.1	121.16	024°13'14.68"	15,865,356.17	1,542,650.53	(15,865,455.35, 1,542,379.35)	(15,865,335.36, 1,542,362.53)
C5	125.77	283.8	227.32	129°18'06.60"	15,864,341.80	1,542,560.44	(15,864,332.73, 1,542,434.99)	(15,864,250.47, 1,542,646.91)
C6	149.28	144.0	138.45	055°15'20.25"	15,864,629.26	1,543,264.10	(15,864,737.66, 1,543,161.47)	(15,864,775.38, 1,543,294.68)
C7	176.37	242.8	224.10	078°53'07.78"	15,864,892.07	1,543,598.07	(15,864,719.44, 1,543,561.95)	(15,864,823.34, 1,543,760.50)
C8	121.19	217.8	189.64	102°57'52.83"	15,864,819.54	1,543,890.49	(15,864,866.76, 1,543,778.88)	(15,864,917.71, 1,543,961.55)
C9	132.22	210.6	189.02	091°15'03.53"	15,864,960.98	1,544,127.25	(15,864,853.88, 1,544,049.72)	(15,864,885.81, 1,544,236.02)
C10	217.39	99.1	98.23	026°06'49.40"	15,865,243.31	1,544,747.35	(15,865,366.91, 1,544,568.51)	(15,865,433.01, 1,544,641.17)
C11	581.76	358.2	352.56	035°16'38.41"	15,866,085.78	1,544,616.27	(15,865,578.13, 1,544,900.43)	(15,865,835.46, 1,545,141.43)
C12	142.80	59.1	58.66	023°42'16.53"	15,865,950.79	1,545,354.59	(15,866,012.23, 1,545,225.69)	(15,866,058.87, 1,545,261.27)

STAGE 3 EMBANKMENT AND ROAD LINE TABLE				
LINE #	LENGTH (FT)	BEARING	START POINT (N, E)	END POINT (N, E)
L1	1225.39	N61° 51' 17.45"W	(15,866,205.89, 1,545,430.97)	(15,866,783.92, 1,544,350.48)
L2	450.55	S89° 56' 28.03"W	(15,866,799.35, 1,544,288.76)	(15,866,798.89, 1,543,838.22)
L3	593.80	S33° 17' 00.67"W	(15,866,750.01, 1,543,747.78)	(15,866,253.62, 1,543,421.91)
L4	406.79	S43° 55' 03.84"W	(15,866,253.62, 1,543,421.91)	(15,865,960.59, 1,543,139.75)
L5	392.13	S83° 48' 12.09"W	(15,865,960.59, 1,543,139.75)	(15,865,918.26, 1,542,749.91)
L6	257.83	S20° 05' 13.86"W	(15,865,697.49, 1,542,467.90)	(15,865,455.35, 1,542,379.35)
L7	1005.25	S4° 08' 00.82"E	(15,865,335.36, 1,542,362.53)	(15,864,332.73, 1,542,434.99)
L8	708.61	N46° 33' 52.58"E	(15,864,250.47, 1,542,646.91)	(15,864,737.66, 1,543,161.47)
L9	273.06	S78° 10' 47.18"E	(15,864,775.38, 1,543,294.68)	(15,864,719.44, 1,543,561.95)
L10	47.15	N22° 56' 05.05"E	(15,864,823.34, 1,543,760.50)	(15,864,866.76, 1,543,778.88)
L11	108.85	S54° 06' 02.13"E	(15,864,917.71, 1,543,961.55)	(15,864,853.88, 1,544,049.72)
L12	584.81	N34° 38' 54.35"E	(15,864,885.81, 1,544,236.02)	(15,865,366.91, 1,544,568.51)

STAGE 3 EMBANKMENT AND ROAD LINE TABLE				
LINE #	LENGTH (FT)	BEARING	START POINT (N, E)	END POINT (N, E)
L13	297.11	N60° 45' 43.75"E	(15,865,433.01, 1,544,641.17)	(15,865,578.13, 1,544,900.43)
L14	195.83	N25° 29' 05.33"E	(15,865,835.46, 1,545,141.43)	(15,866,012.23, 1,545,225.69)
L15	224.67	N49° 11' 21.86"E	(15,866,058.87, 1,545,261.27)	(15,866,205.71, 1,545,431.31)

LEGEND

— PROPOSED GROUND

- - - EXISTING GROUND

ISSUED FOR CONSTRUCTION



0	2019-11-06	ISSUED FOR CONSTRUCTION	MDB	JRP	CJM	RAB
REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED

CLIENT
CALICO RESOURCES USA CORP.
GRASSY MOUNTAIN PROJECT
MALHEUR COUNTY, OREGON

CONSULTANT



GOLDER ASSOCIATES INC.
595 DOUBLE EAGLE COURT, SUITE 1000
RENO, NV 89521
USA
[+1] (775) 828-9604
www.golder.com

PROJECT
GRASSY MOUNTAIN
TAILINGS STORAGE FACILITY AND WASTE ROCK DUMP
DETAILED DESIGN

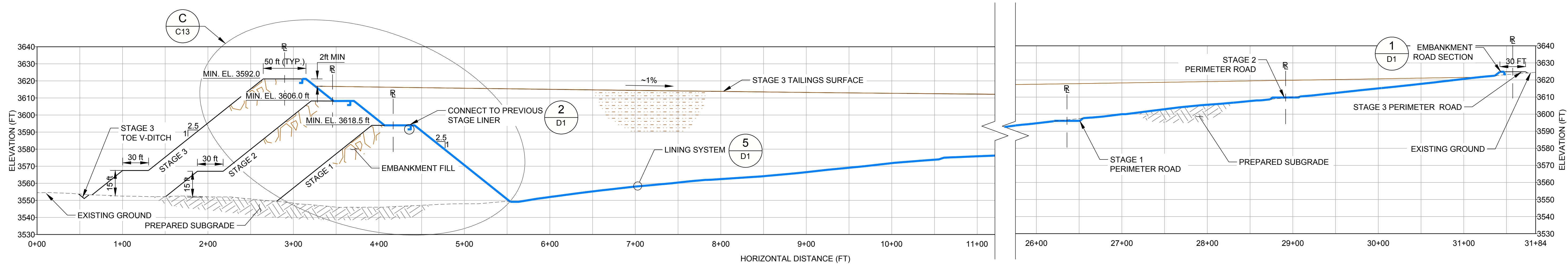
TITLE
EMBANKMENT AND ROAD PROFILE (2 OF 2)
STAGE 3

PROJECT NO.	REV.	17 of 42	DRAWING
1663241	0		C11B



1 in IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI D

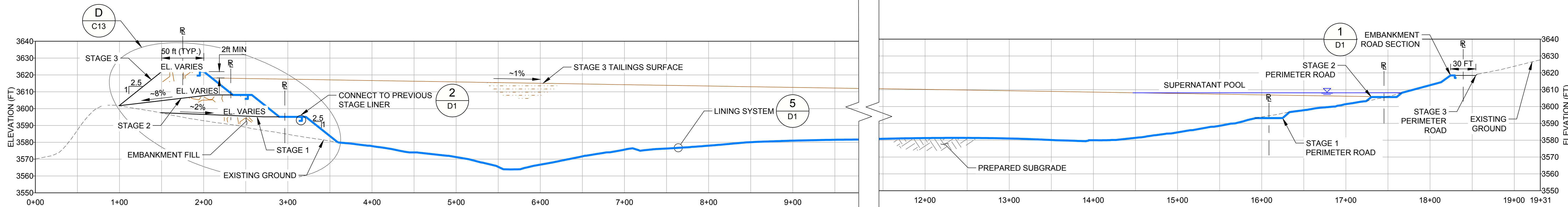
Path: \\verod\del\MDA\166324\Grassy Mountain\PF5000_Drawing\PRODUCTION\CONSOLIDATED PERMIT\ File Name: C7 TAILINGS FACILITY OVERALL SECTIONS.dwg | Last Edited By: jephre Date: 2019-11-06 Time: 3:11:24 PM | Printed By: jephre Date: 2019-11-06 Time: 4:47:37 PM



SCALE 1" = 60'
VERT. SCALE 1" = 30'

A
C1

NORTH TO SOUTH TYPICAL SECTION



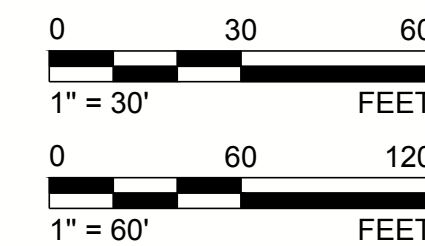
SCALE 1" = 60'
VERT. SCALE 1" = 30'

B
C1

WEST TO EAST TYPICAL SECTION

- LEGEND**
- LINING SYSTEM 5 D1
 - EXISTING GROUND
 - TAILINGS SURFACE
 - SUPERNATANT POOL SURFACE

ISSUED FOR CONSTRUCTION



CLIENT
CALICO RESOURCES USA CORP.
GRASSY MOUNTAIN PROJECT
MALHEUR COUNTY, OREGON



CONSULTANT

GOLDER ASSOCIATES INC.
595 DOUBLE EAGLE COURT, SUITE 1000
RENO, NV 89521
USA
[+1] (775) 828-9604
www.golder.com



PROJECT
GRASSY MOUNTAIN
TAILINGS STORAGE FACILITY AND WASTE ROCK DUMP
DETAILED DESIGN

TITLE
TAILINGS STORAGE FACILITY OVERALL SECTIONS

0 2019-11-06 ISSUED FOR CONSTRUCTION

MDB JRP CJM RAB

DESIGNED PREPARED REVIEWED APPROVED

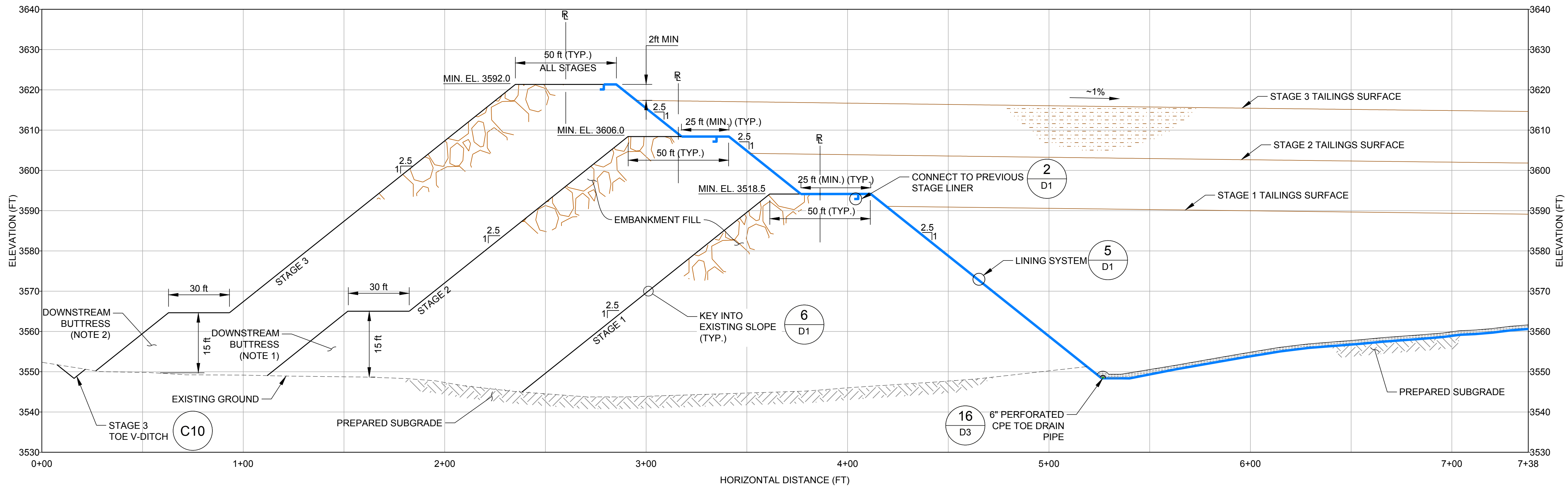
PROJECT NO.
1663241

REV. 0 18 of 42

DRAWING
C12

1 in IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

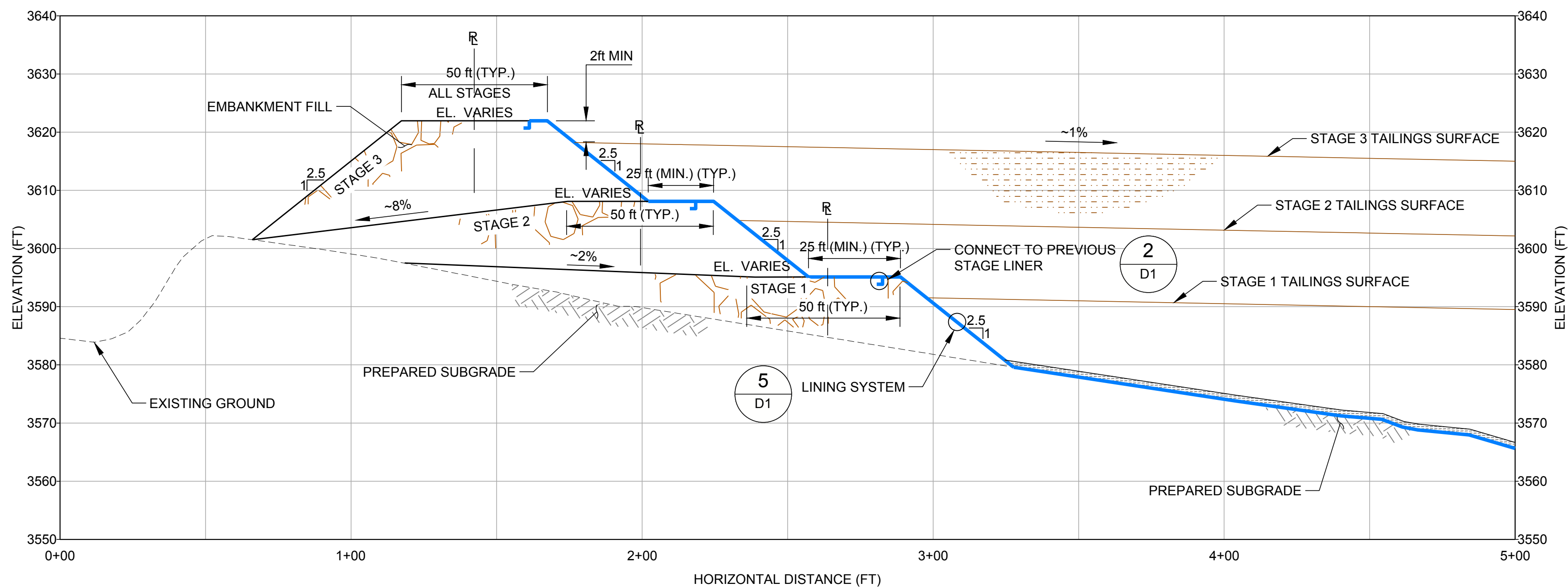
Path: \\verod\del\MDA\1663241_Grassy Mountain PFS\600_Drawing\PRODUCTION\CONSOLIDATED PERMIT | File Name: C3 TAILINGS FACILITY SECTION DETAILS.dwg | Last Edited By: jperine Date: 2019-11-08 Time: 4:48:43 PM | Printed By: jperine Date: 2019-11-08 Time: 4:48:43 PM



SCALE 1" = 30'
VERT. SCALE 1" = 15'

C NORTH EMBANKMENT TYPICAL SECTION

C1 C5 C8 C10 C12



SCALE 1" = 30'
VERT. SCALE 1" = 15'

D WEST EMBANKMENT TYPICAL SECTION

C1 C5 C8 C10 C12

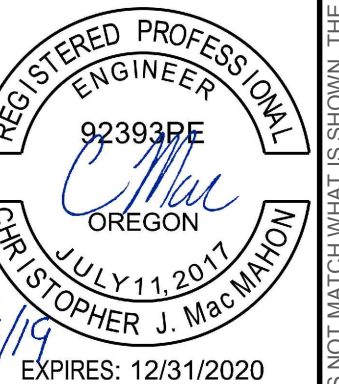
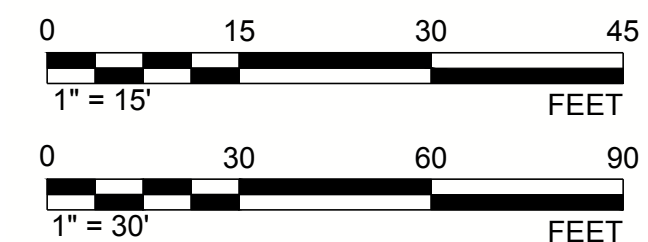
LEGEND

- LINING SYSTEM (5 D1)
- EXISTING GROUND
- TAILINGS SURFACE

NOTES

- DOWNSTREAM BUTTRESS FROM STAGE 2 REFERENCE LINE STATIONS 9+16.00 TO 12+17.00 ONLY.
- DOWNSTREAM BUTTRESS FROM STAGE 3 REFERENCE LINE STATIONS 10+48.00 TO 13+67.00 ONLY.

ISSUED FOR CONSTRUCTION



CLIENT
CALICO RESOURCES USA CORP.
GRASSY MOUNTAIN PROJECT
MALHEUR COUNTY, OREGON



CONSULTANT

GOLDER ASSOCIATES INC.
595 DOUBLE EAGLE COURT, SUITE 1000
RENO, NV 89521
USA
[+1] (775) 828-9604
www.golder.com



PROJECT
GRASSY MOUNTAIN
TAILINGS STORAGE FACILITY AND WASTE ROCK DUMP
DETAILED DESIGN

TITLE
TAILINGS STORAGE FACILITY EMBANKMENT SECTIONS

PROJECT NO.
1663241

REV. 0
19 of 42

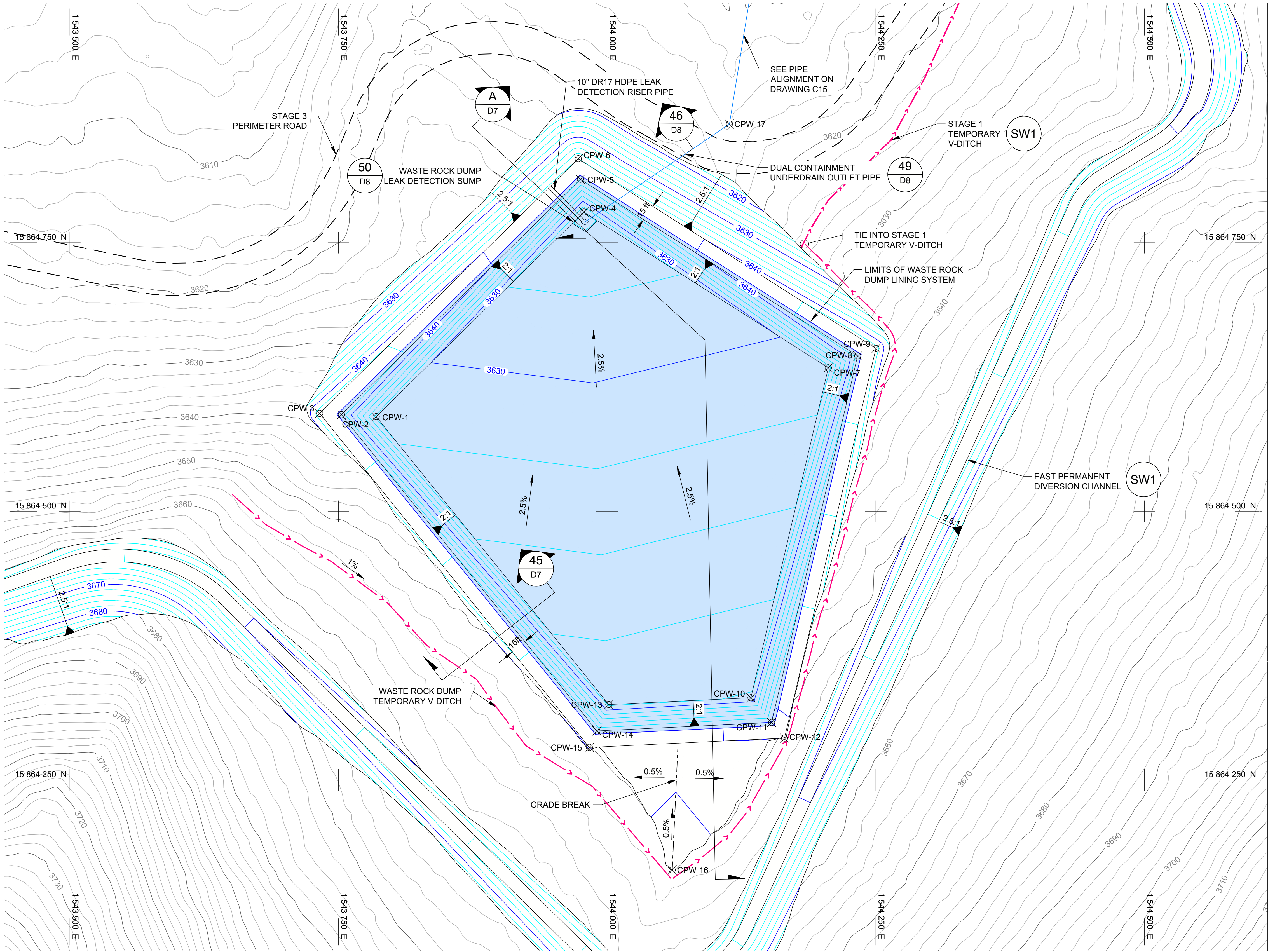
DRAWING
C13

0 2019-11-06 ISSUED FOR CONSTRUCTION

MDB JRP CJM RAB

DESIGNED PREPARED REVIEWED APPROVED

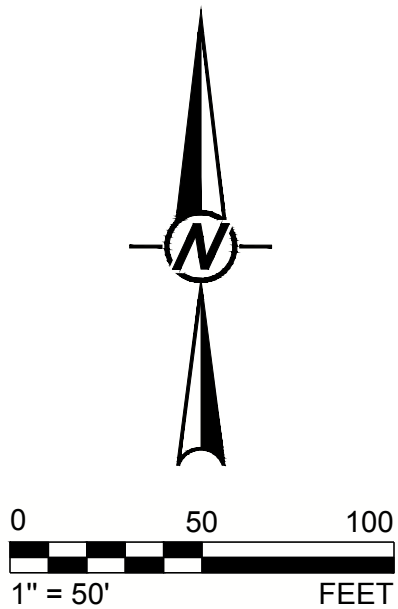
Path: \\veritas\data\MDA\1663241_Grassy Mountain\PF5600_Drawing\PRODUCTION\CONSOLIDATED PERMIT - File Name: 1663241_C.X_WASTE ROCK DUMP LAYOUT.dwg | Last Edited By: jefrice Date: 2019-11-06 Time: 3:45:16 PM | Printed By: jefrice Date: 2019-11-06 Time: 4:09:50 PM



- LEGEND**
- 3600 — EXISTING GROUND (2 FT CONTOURS) (GENERAL NOTE 1)
 - 3600 — PROPOSED GRADING (2 FT CONTOURS)
 - > — TEMPORARY V-DITCH (SW1)
 - — LIMITS OF WASTE ROCK DUMP LINING SYSTEM (5 D1)
 - - - STAGE 3 PERIMETER ROAD

NOTE
1. STORMWATER LAYOUT PRESENTED ON DRAWINGS SW1 AND SW2.

WASTE ROCK DUMP CONTROL TABLE				
POINT NO.	NORTHING (FT)	EASTING (FT)	ELEVATION (FT)	DESCRIPTION
CPW-1	15,864,588.04	1,543,785.09	3,631.43	BERM TOE
CPW-2	15,864,589.87	1,543,752.75	3,643.43	BERM CREST
CPW-3	15,864,591.02	1,543,732.54	3,643.43	BERM CREST
CPW-4	15,864,778.44	1,543,978.41	3,626.02	BERM TOE
CPW-5	15,864,808.95	1,543,975.19	3,638.02	BERM CREST
CPW-6	15,864,828.02	1,543,973.17	3,638.02	BERM CREST
CPW-7	15,864,633.47	1,544,205.90	3,630.98	BERM TOE
CPW-8	15,864,644.56	1,544,233.16	3,642.98	BERM CREST
CPW-9	15,864,651.49	1,544,250.19	3,642.98	BERM CREST
CPW-10	15,864,326.45	1,544,133.84	3,638.13	BERM TOE
CPW-11	15,864,303.35	1,544,153.07	3,650.13	BERM CREST
CPW-12	15,864,288.91	1,544,165.09	3,650.13	BERM CREST
CPW-13	15,864,320.11	1,544,001.63	3,637.49	BERM TOE
CPW-14	15,864,295.55	1,543,990.43	3,649.49	BERM CREST
CPW-15	15,864,280.20	1,543,983.43	3,649.49	BERM CREST
CPW-16	15,864,166.13	1,544,060.60	3,650.33	EXISTING GROUND TIE-IN
CPW-17	15,864,860.29	1,544,113.85	3,613.99	UNDERDRAIN OUTLET PIPE HINGE



ISSUED FOR CONSTRUCTION



0	2019-11-06	ISSUED FOR CONSTRUCTION	MDB	JRP	CJM	RAB
REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED

CLIENT
CALICO RESOURCES USA CORP.
GRASSY MOUNTAIN PROJECT
MALHEUR COUNTY, OREGON



CONSULTANT



GOLDER ASSOCIATES INC.
595 DOUBLE EAGLE COURT, SUITE 1000
RENO, NV 89521
USA
[+1] (775) 828-9604
www.golder.com

PROJECT
GRASSY MOUNTAIN
TAILINGS STORAGE FACILITY AND WASTE ROCK DUMP
DETAILED DESIGN

TITLE
WASTE ROCK DUMP LAYOUT

PROJECT NO.
1663241

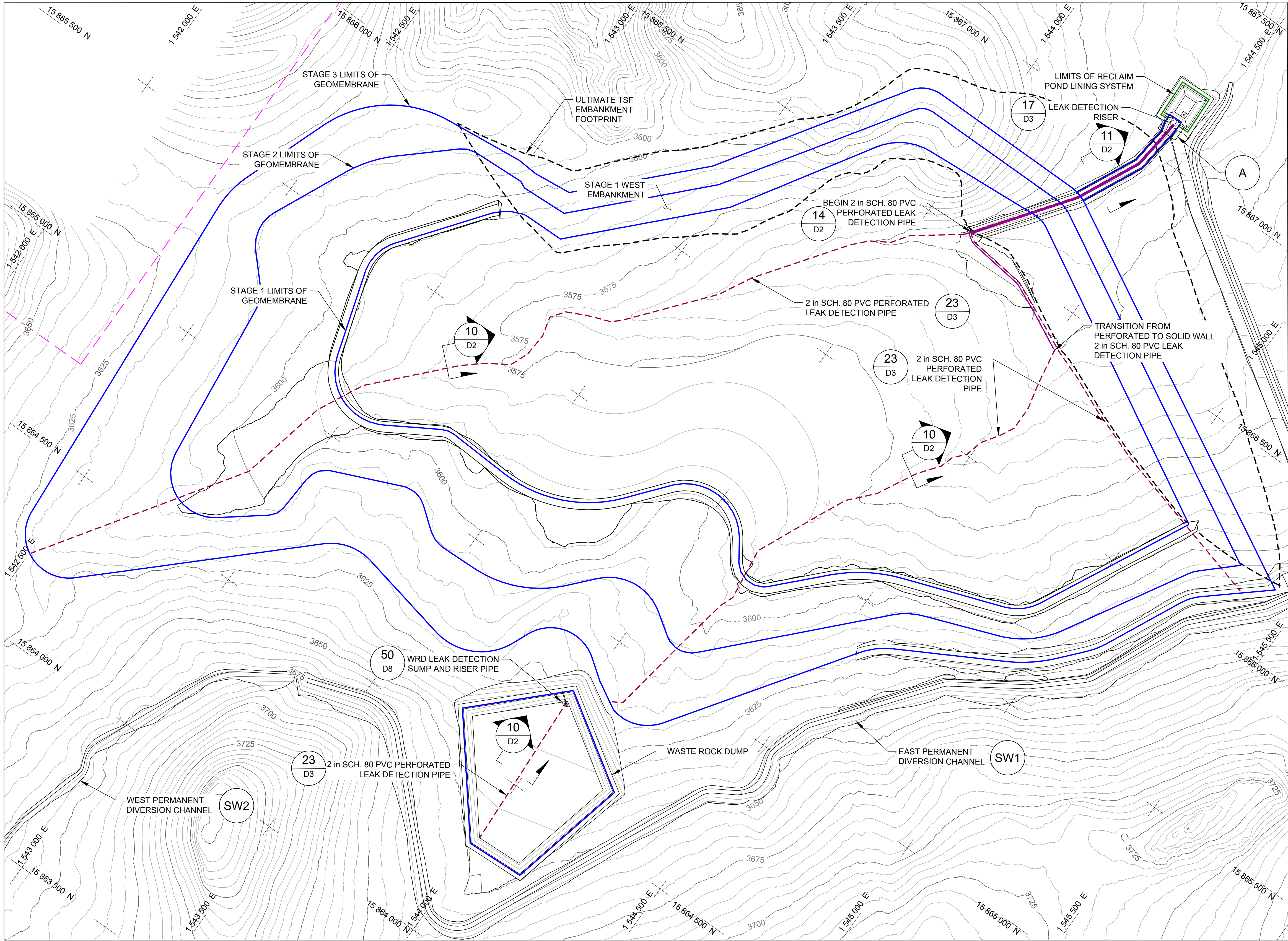
REV.
0

20 of 42

DRAWING
C14

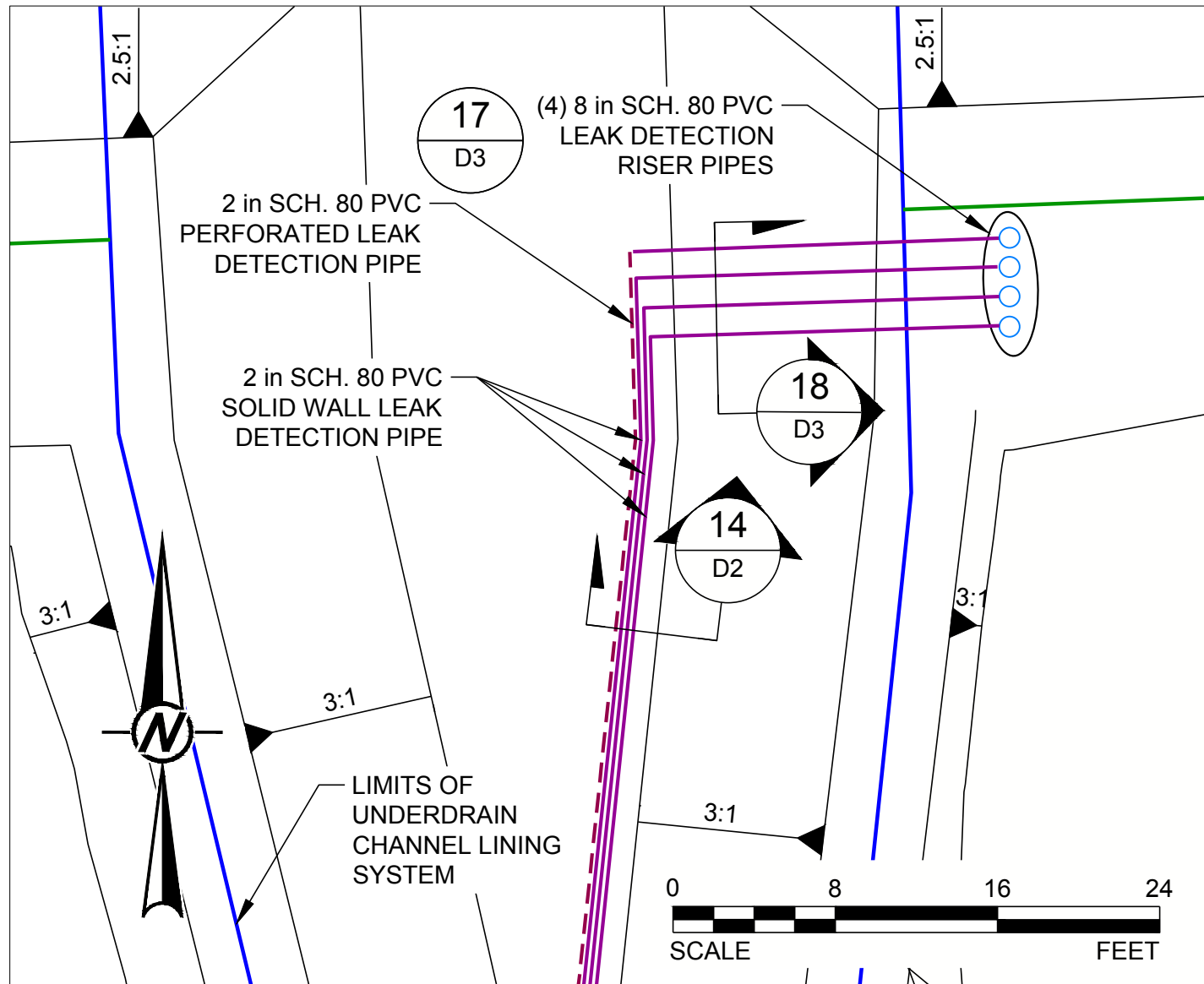
1 in IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI D

Path: \\verod\delm\DAI\1663241_Grassy Mountain\PF5600_Drawing\PRODUCTION\CONSOLIDATED PERMIT_1 File Name: 1663241_C.X LEAK DETECTION LAYOUT.dwg | Last Edited By: jperice Date: 2019-11-08 Time: 3:47:33 PM | Printed By: jperice Date: 2019-11-08 Time: 4:31:03 PM



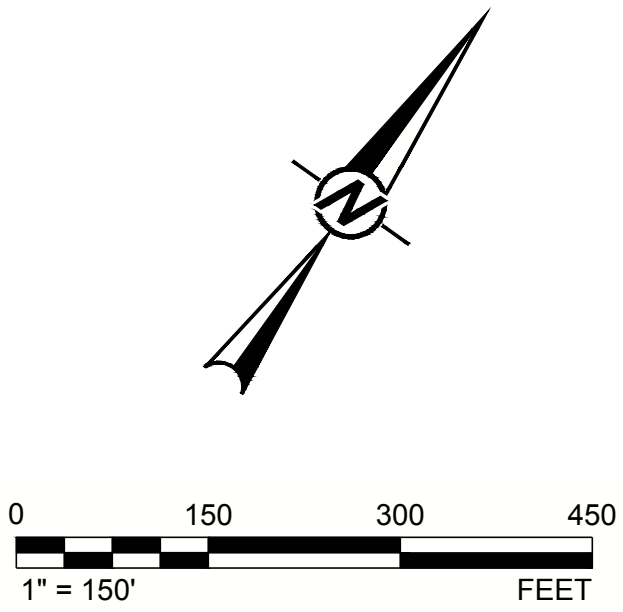
- LEGEND**
- 3600 - EXISTING GROUND CONTOURS (5 FT CONTOURS) (GENERAL NOTE 1)
 - PROJECT BOUNDARY
 - LIMITS OF RECLAIM POND LINING SYSTEM 42 D6
 - LIMITS OF STAGED GEOMEMBRANE 5 D1
 - 2 in SCH. 80 PVC PERFORATED LEAK DETECTION PIPE 23 C13
 - 2 in SCH. 80 PVC SOLID WALL LEAK DETECTION PIPE
 - ULTIMATE TSF EMBANKMENT FOOTPRINT

NOTE
1. STORMWATER LAYOUT PRESENTED ON SHEETS SW1 AND SW2.



NTS A LEAK DETECTION RISER DETAIL

ISSUED FOR CONSTRUCTION



0	2019-11-06	ISSUED FOR CONSTRUCTION	MDB	JRP	CJM	RAB
REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED

CLIENT
CALICO RESOURCES USA CORP.
GRASSY MOUNTAIN PROJECT
MALHEUR COUNTY, OREGON



CONSULTANT



GOLDER ASSOCIATES INC.
595 DOUBLE EAGLE COURT, SUITE 1000
RENO, NV 89521
USA
[+1] (775) 828-9604
www.golder.com

PROJECT
GRASSY MOUNTAIN
TAILINGS STORAGE FACILITY AND WASTE ROCK DUMP
DETAILED DESIGN

TITLE
LEAK DETECTION SYSTEM LAYOUT

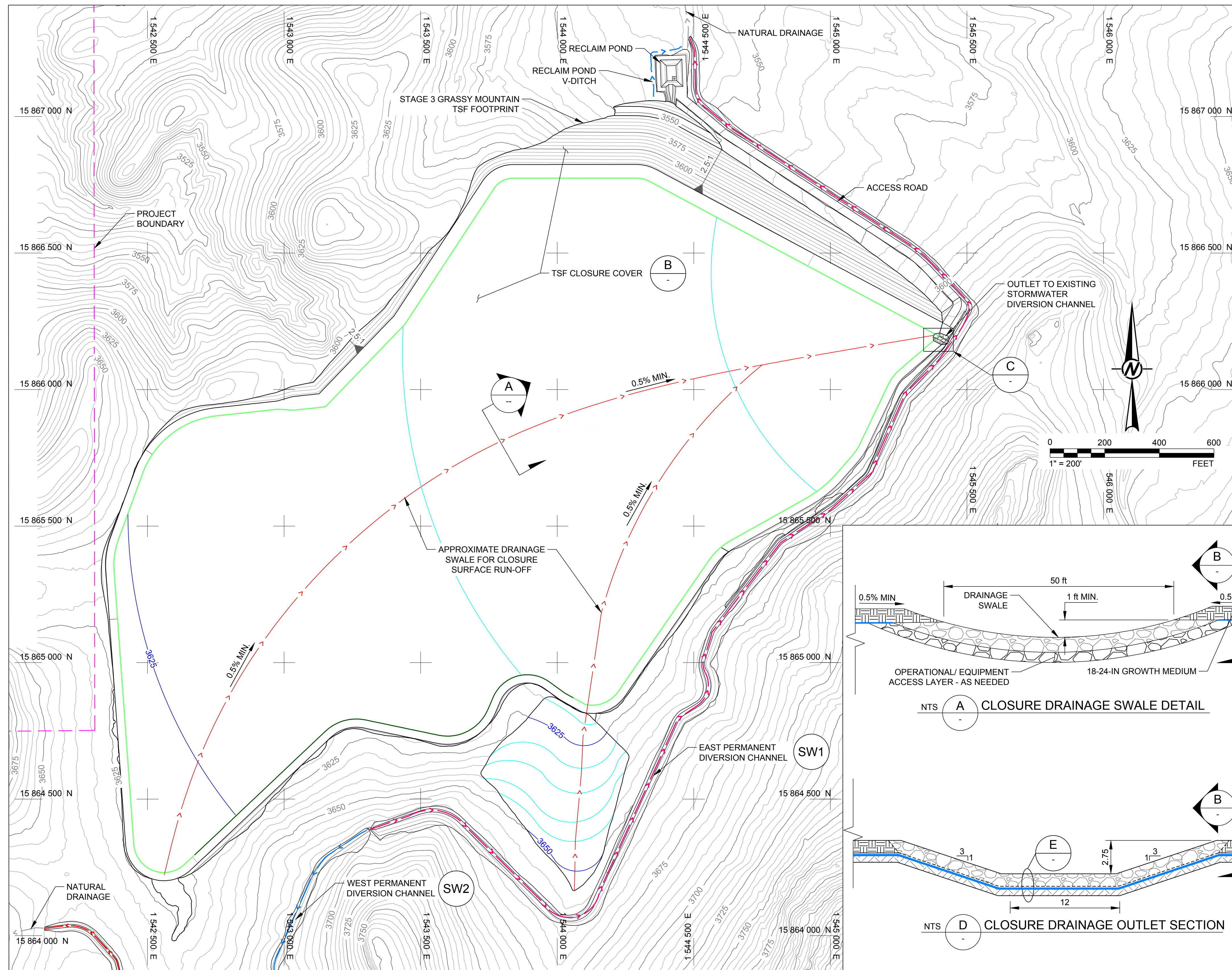
PROJECT NO.
1663241

REV.
0

22 of 42

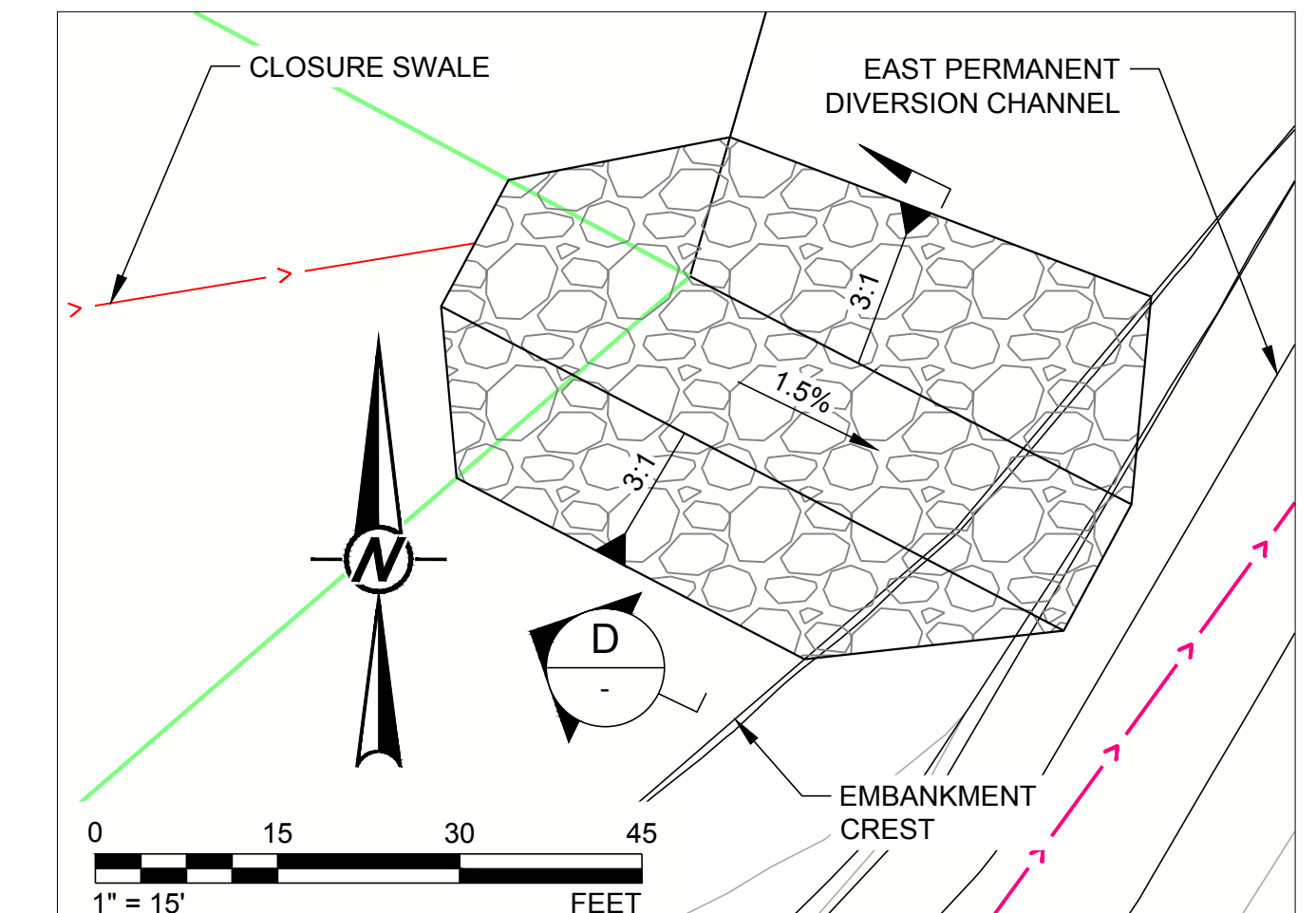
DRAWING
C16

1 in IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM A3 AND 1

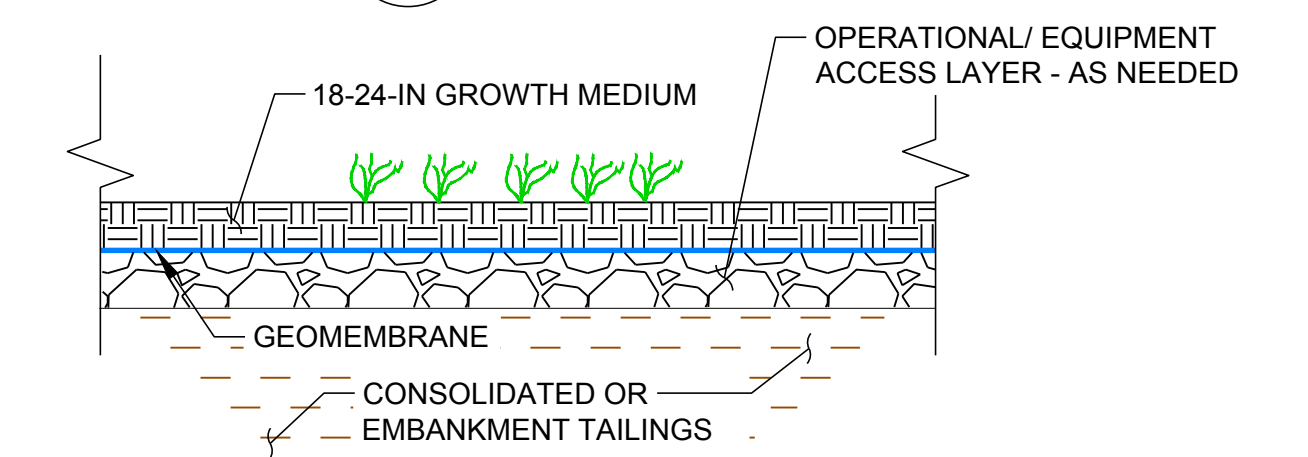


- | LEGEND | |
|---|--|
|  | EXISTING GROUND CONTOURS (5 FT CONTOURS) (NOTE 1) |
|  | PROJECT BOUNDARY |
|  | PERMANENT TRAPEZOIDAL STORMWATER DIVERSION CHANNEL |
|  | PERMANENT V-DITCH STORMWATER DIVERSION CHANNEL |
|  | CLOSURE DRAINAGE SWALE |
|  | CONCEPTUAL CLOSURE GRADING (5 FT CONTOURS) |
|  | NATURAL DRAINAGE |
|  | LIMITS OF CLOSURE COVER |

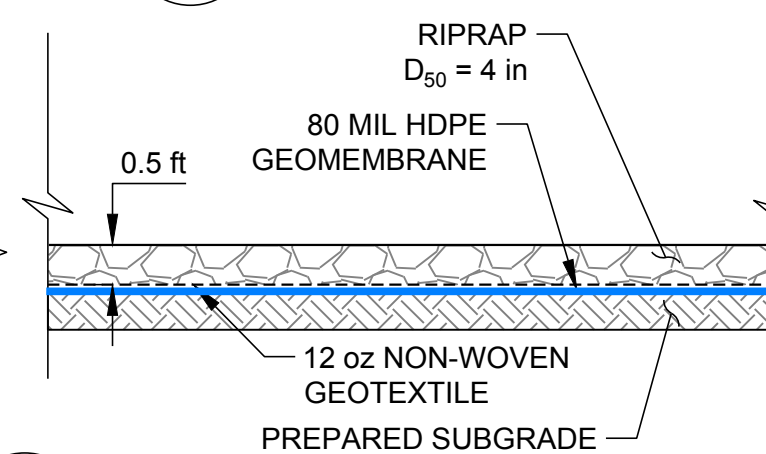
- | | |
|--------------|---|
| NOTES | |
| 1. | EXISTING GROUND AS SHOWN COMPRISED OF 2017 TOPOGRAPHY (REFER TO GENERAL NOTE 1) AND THE STAGE 3 TSF LAYOUT. |
| 2. | STORMWATER LAYOUT PRESENTED ON DRAWINGS SW1 AND SW2. |



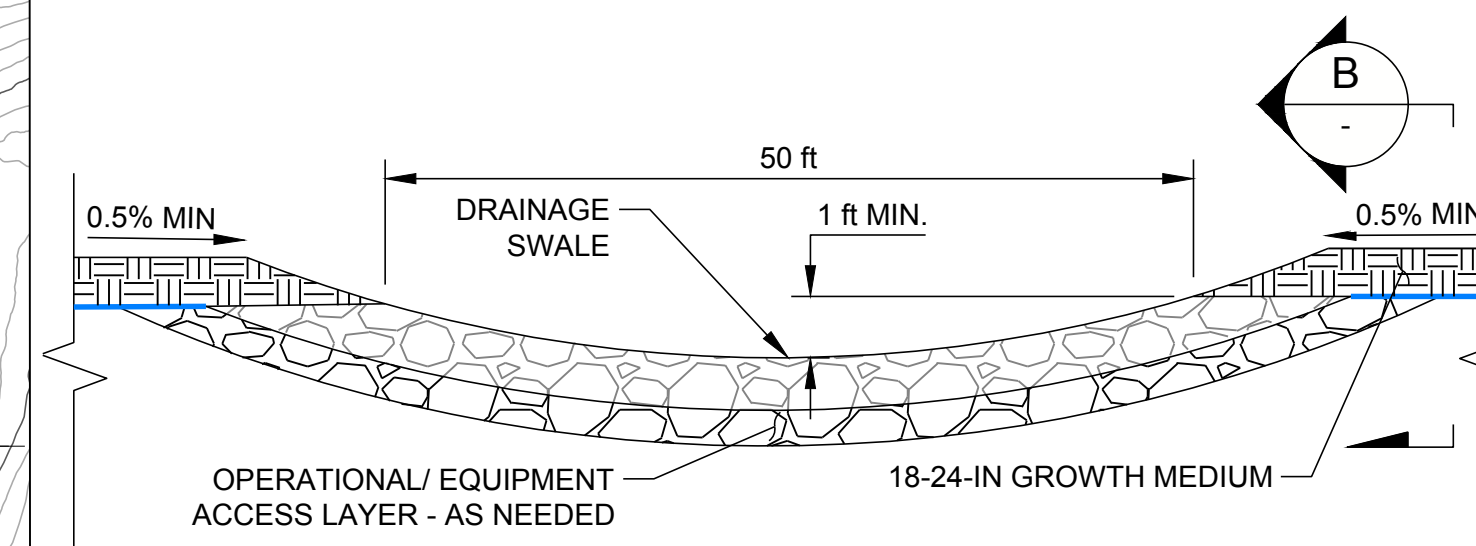
SCALE 1" = 15' **C** CLOSURE DRAINAGE OUTLET DETAIL



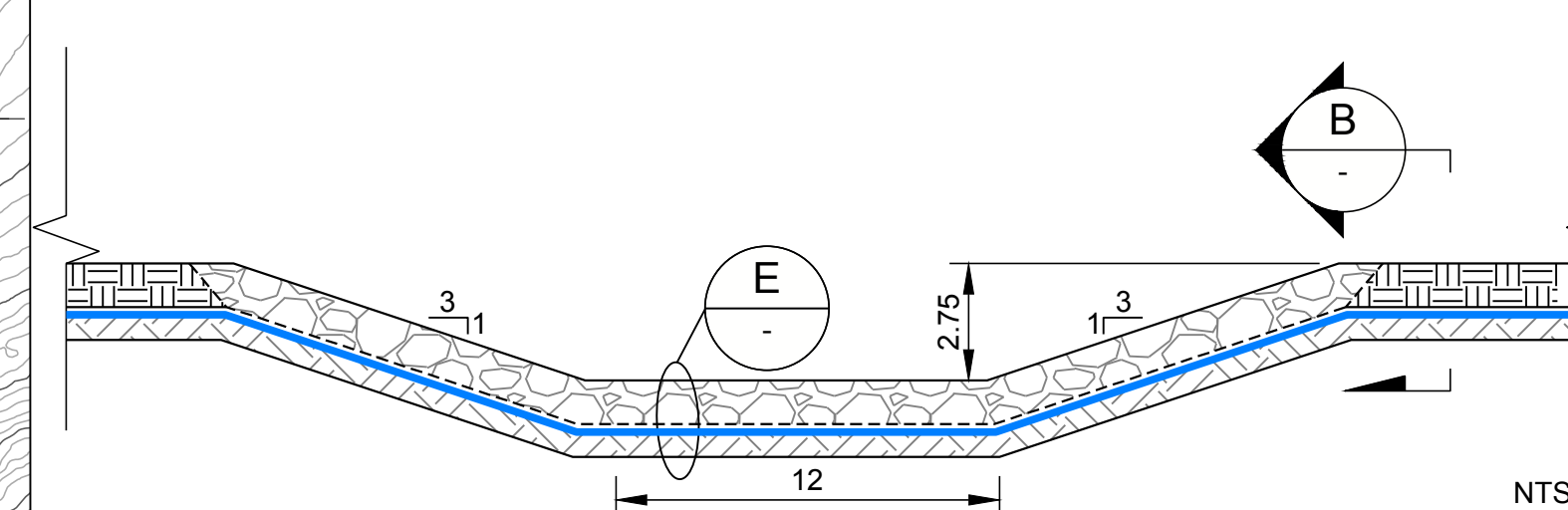
NTS **B** TSF CLOSURE COVER SYSTEM DETAIL



NTS E OUTLET LINING SYSTEM DETAIL



NTS **A** CLOSURE DRAINAGE SWALE DETAIL



NTS **D** CLOSURE DRAINAGE OUTLET SECTION

ISSUED FOR CONSTRUCTION

CLIENT
CALICO RESOURCES USA CORP.
GRASSY MOUNTAIN PROJECT
MALHEUR COUNTY, OREGON

CONSULTANT



GOLDER ASSOCIATES INC.
595 DOUBLE EAGLE COURT, SUITE 1000
RENO, NV 89521
USA
[+1] (775) 828-9604
www.golder.com

PROJECT
GRASSY MOUNTAIN
TAILINGS STORAGE FACILITY AND WASTE ROCK DUMP
DETAILED DESIGN

TITLE
CONCEPTUAL CLOSURE PLAN

REGISTERED PROFESSIONAL
ENGINEER
92393PE
OREGON
JULY 11, 2017
CHRISTOPHER J. MACMAHON
EXPIRES: 12/31/2020

0	2019-11-06	ISSUED FOR CONSTRUCTION
---	------------	-------------------------

REV.	YYYY-MM-DD	DESCRIPTION
------	------------	-------------

MDB	JRP	CJM	RAB
-----	-----	-----	-----

DESIGNED PREPARED REVIEWED APPROVED



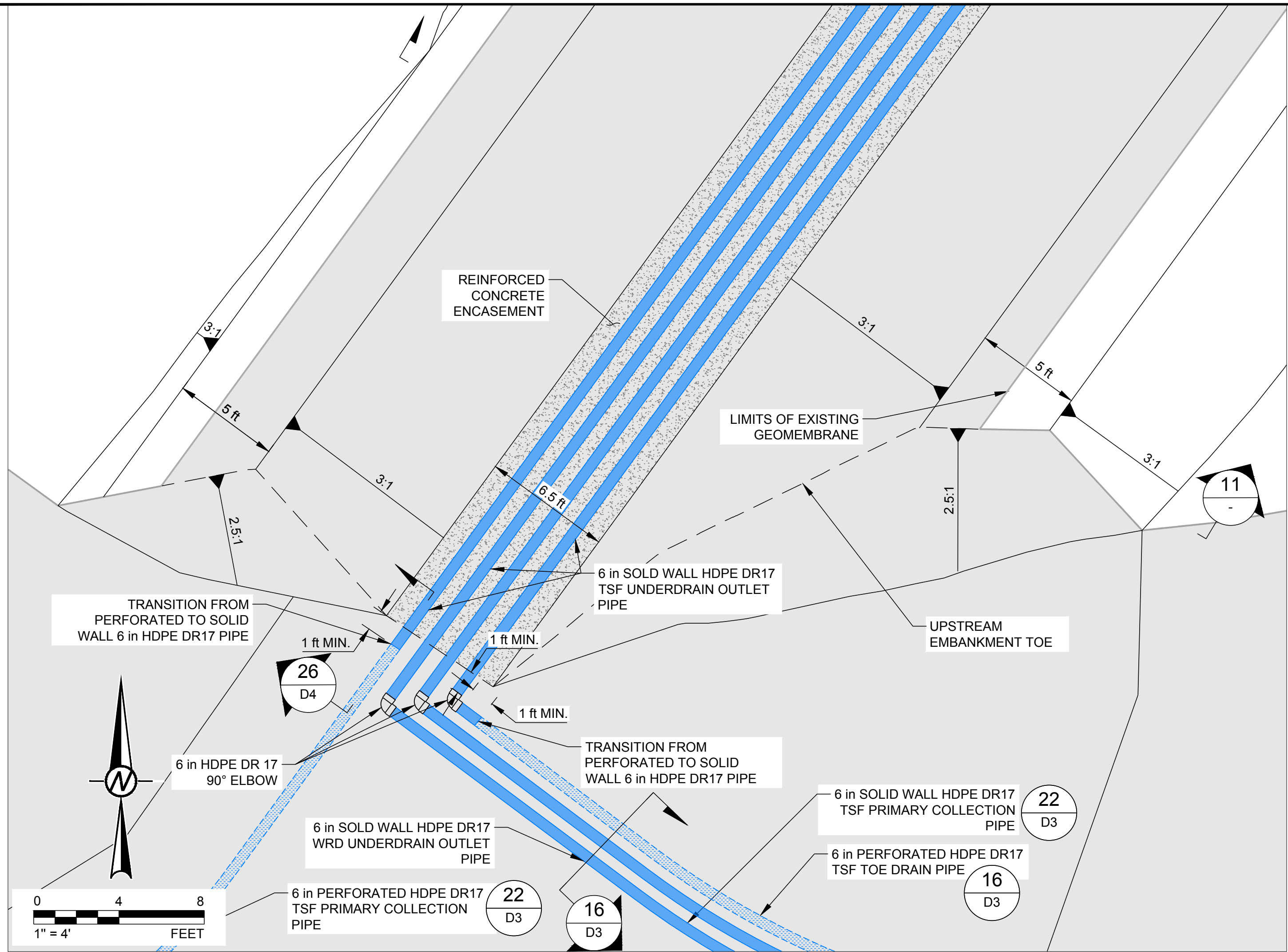
PROJECT NO.
1663241

REV. 23 of 42
0

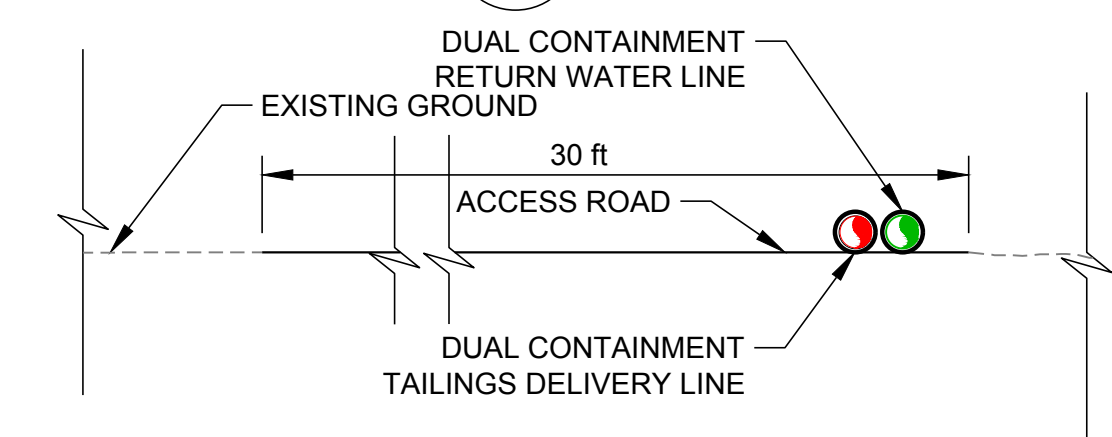
C17

in If this measurement does not match what is shown, the sheet size has been modified from AIN01.D

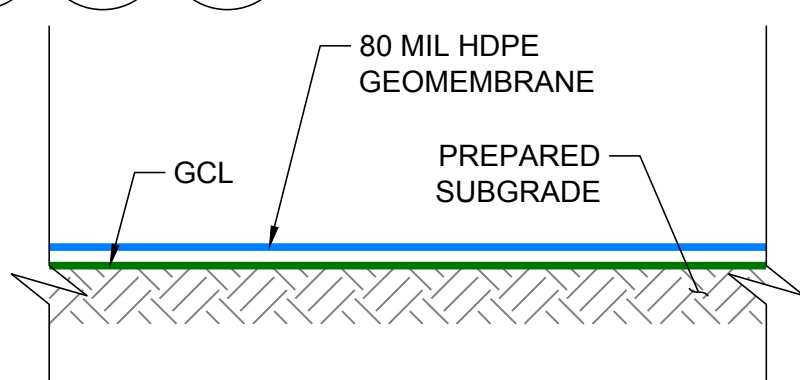
Path: \\verod\del\MDA\166241\Grassy Mountain\PF\6000_Drawing\PRODUCTION\CONSOLIDATED PERMIT\1 File Name: 166241_D_003_UNDERDRAINDETAILS.dwg | Last Edited By: instingrader Date: 2019-11-06 Time: 3:48:37 PM | Printed By: jefPrice Date: 2019-11-06 Time: 4:33:18 PM



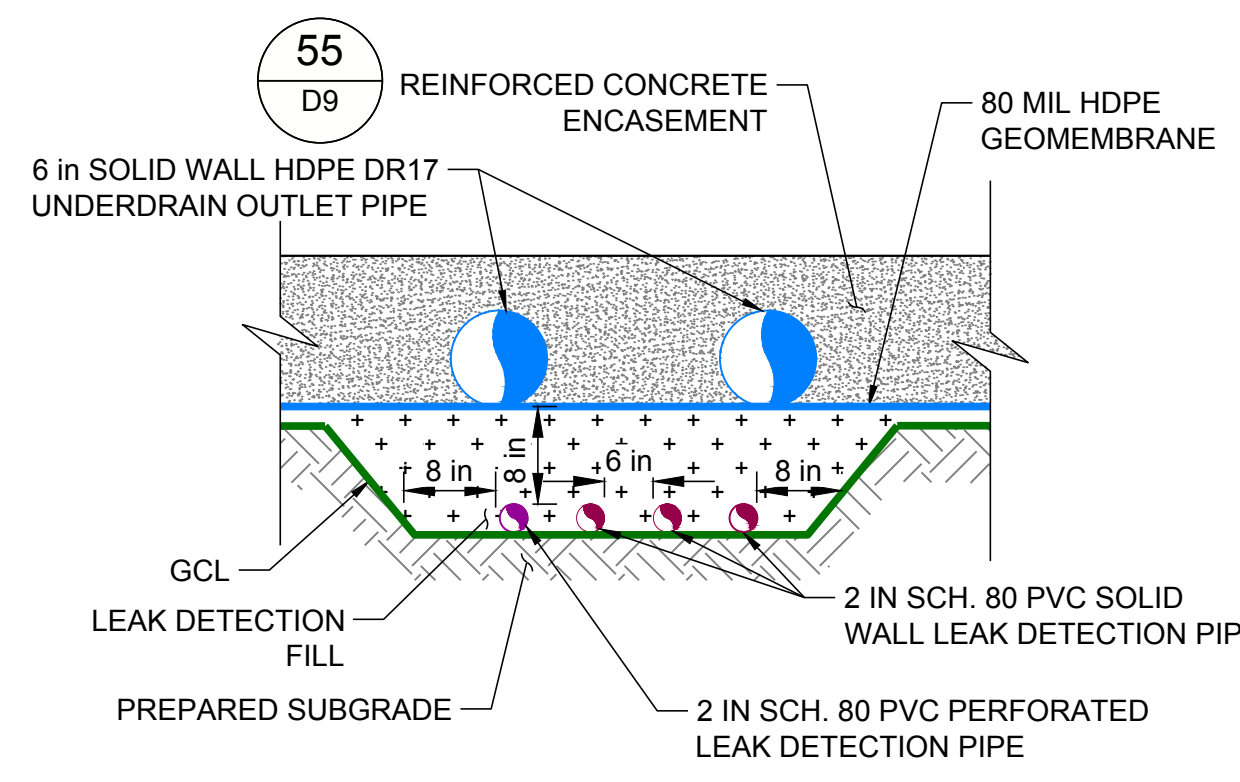
SCALE 1" = 4' 9 UNDERDRAIN CHANNEL INLET



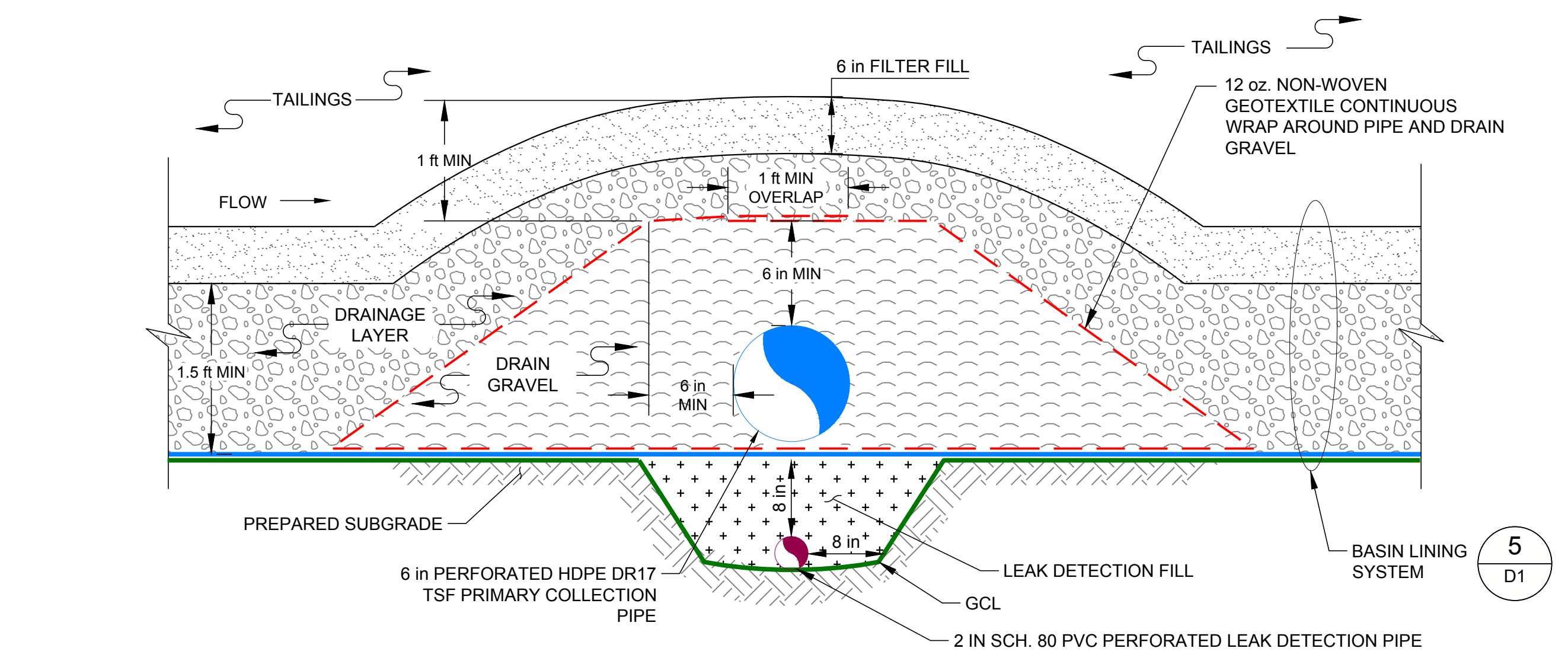
NTS 12 PERMANENT ACCESS ROAD SECTION



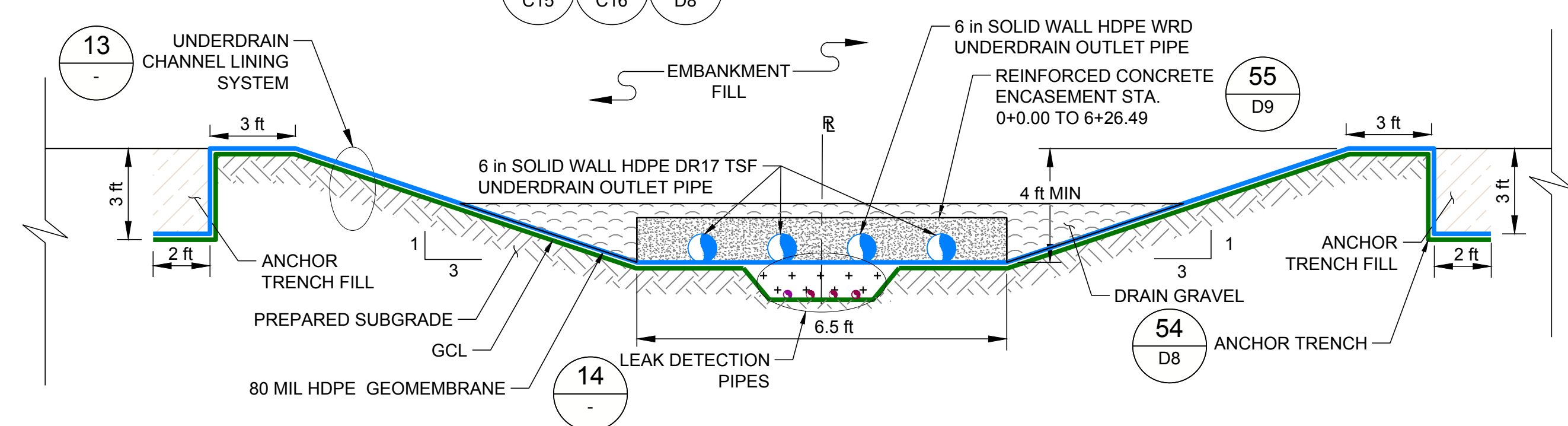
NTS 13 UNDERDRAIN CHANNEL LINING SYSTEM



NTS 14 LEAK DETECTION PIPES BENEATH CHANNEL DETAIL



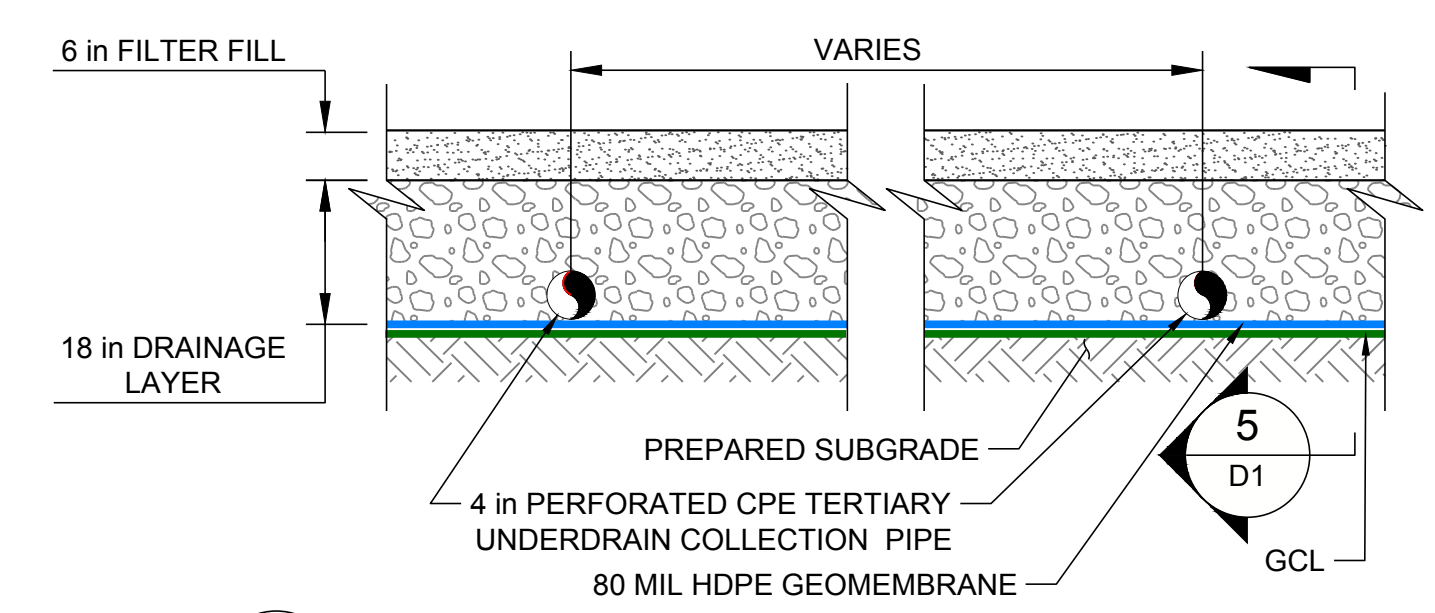
NTS 10 UNDERDRAIN COLLECTION PIPE TYPICAL DETAIL



NTS 11 UNDERDRAIN CHANNEL BENEATH EMBANKMENT TYPICAL SECTION

- LEGEND**
- 12 oz. NON-WOVEN GEOTEXTILE
 - 80 MIL HDPE GEOMEMBRANE
 - GCL
 - EXISTING GROUND
 - LIMITS OF EXISTING GEOMEMBRANE

ISSUED FOR CONSTRUCTION



NTS 15 BASIN PIPING AND LINING SYSTEM DETAIL

0	2019-11-06	ISSUED FOR CONSTRUCTION	MDB	JRP	CJM	RAB
REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED

CLIENT
CALICO RESOURCES USA CORP.
GRASSY MOUNTAIN PROJECT
MALHEUR COUNTY, OREGON



CONSULTANT



GOLDER ASSOCIATES INC.
595 DOUBLE EAGLE COURT, SUITE 1000
RENO, NV 89521
USA
[+1] (775) 828-9604
www.golder.com

PROJECT
GRASSY MOUNTAIN
TAILINGS STORAGE FACILITY AND WASTE ROCK DUMP
DETAILED DESIGN

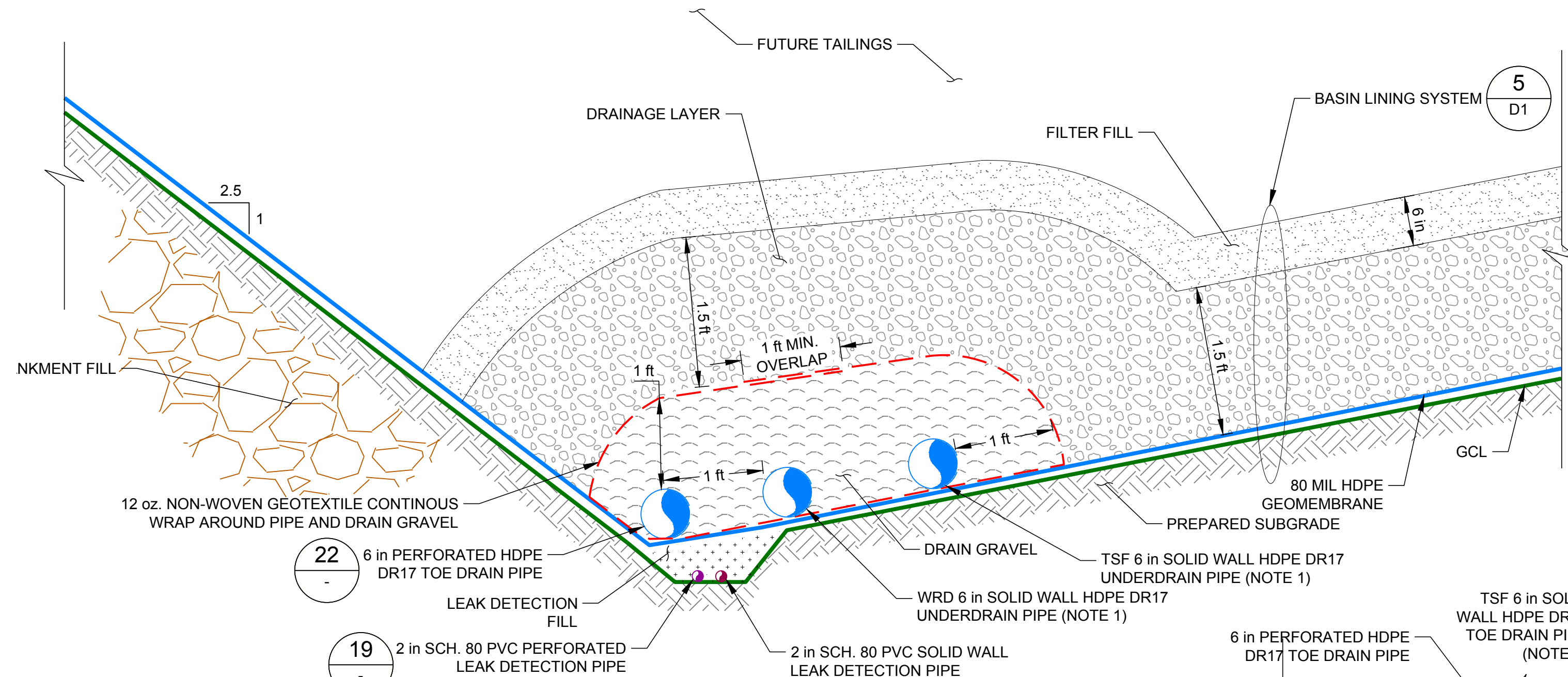
TITLE
DETAILS (2 OF 9)
UNDERDRAIN COLLECTION SYSTEM

PROJECT NO. 1663241	REV. 0	25 OF 42	DRAWING D2
------------------------	-----------	----------	---------------



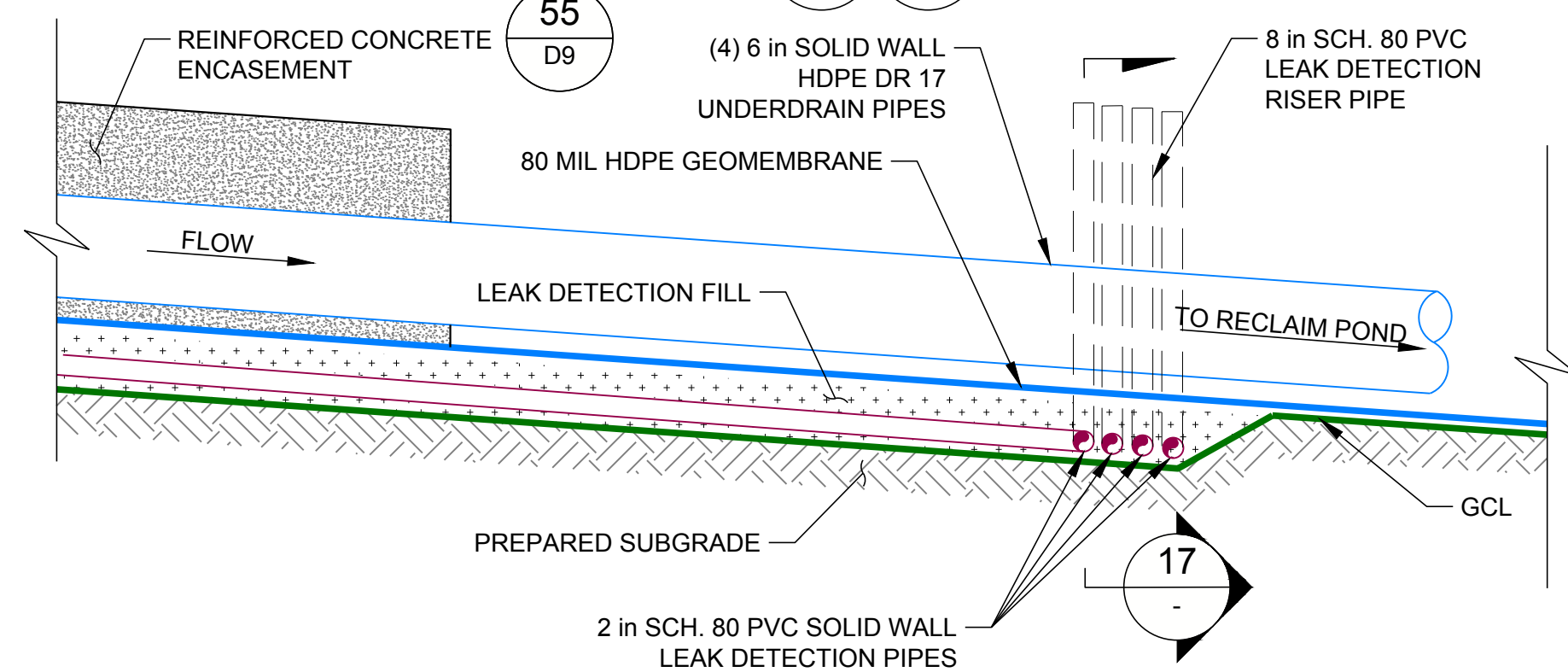
1 in IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI D

Path: \\verod\delm\DAI\663241_Grassy Mountain PFS\600_Drawing\PRODUCTION\CONSOLIDATED PERMIT - File Name: 663241_D_004_COLLECTIONPIPESDETAIL.dwg | Last Edited By: mslg\gaber Date: 2019-11-06 Time: 3:00:59 PM | Printed By: mslg\gaber Date: 2019-11-06 Time: 4:34:02 PM



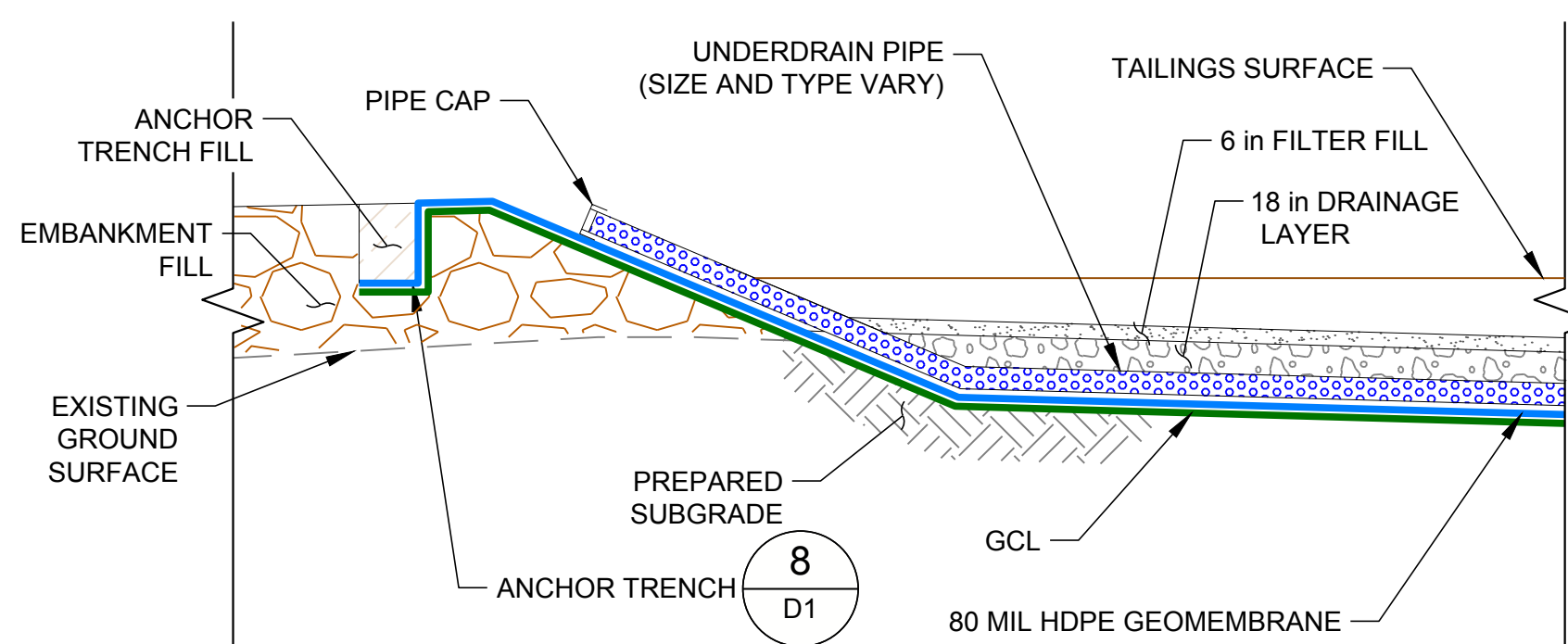
SCALE 1"=1'

16
C13 D2



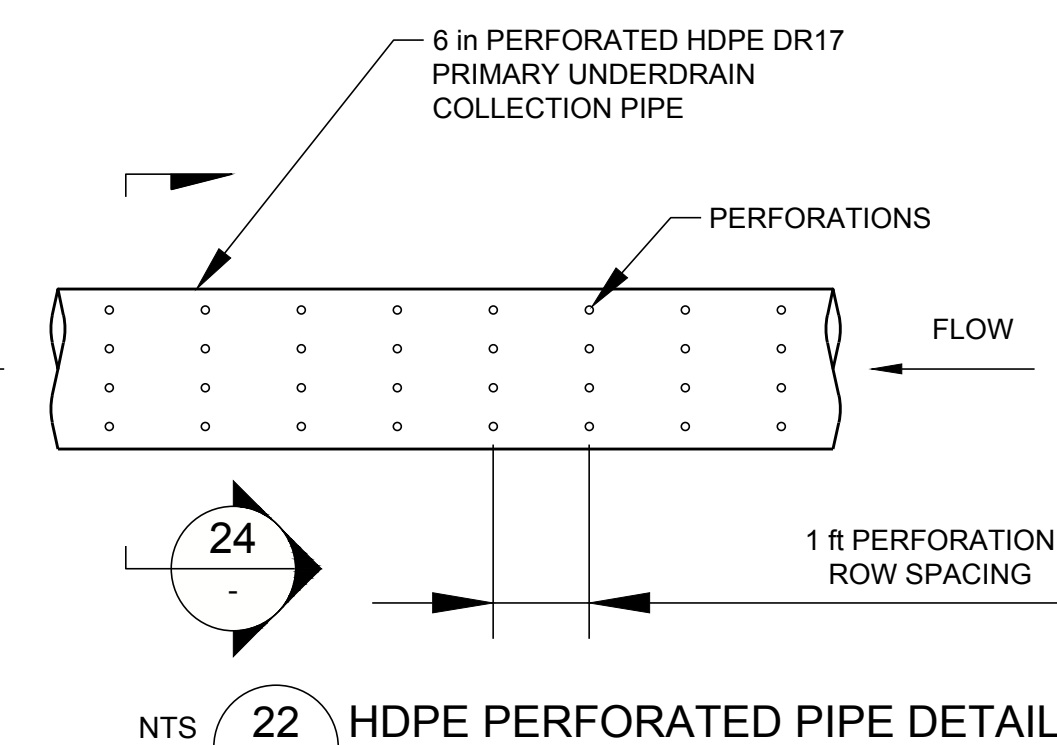
17
C16

18
C16



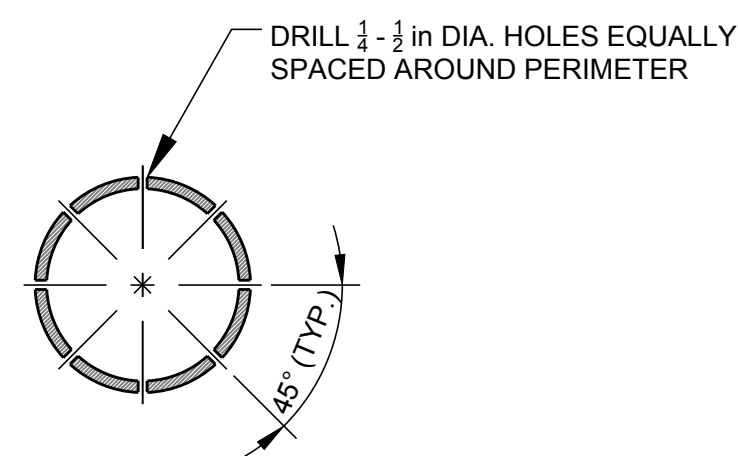
21
C15

22
C15



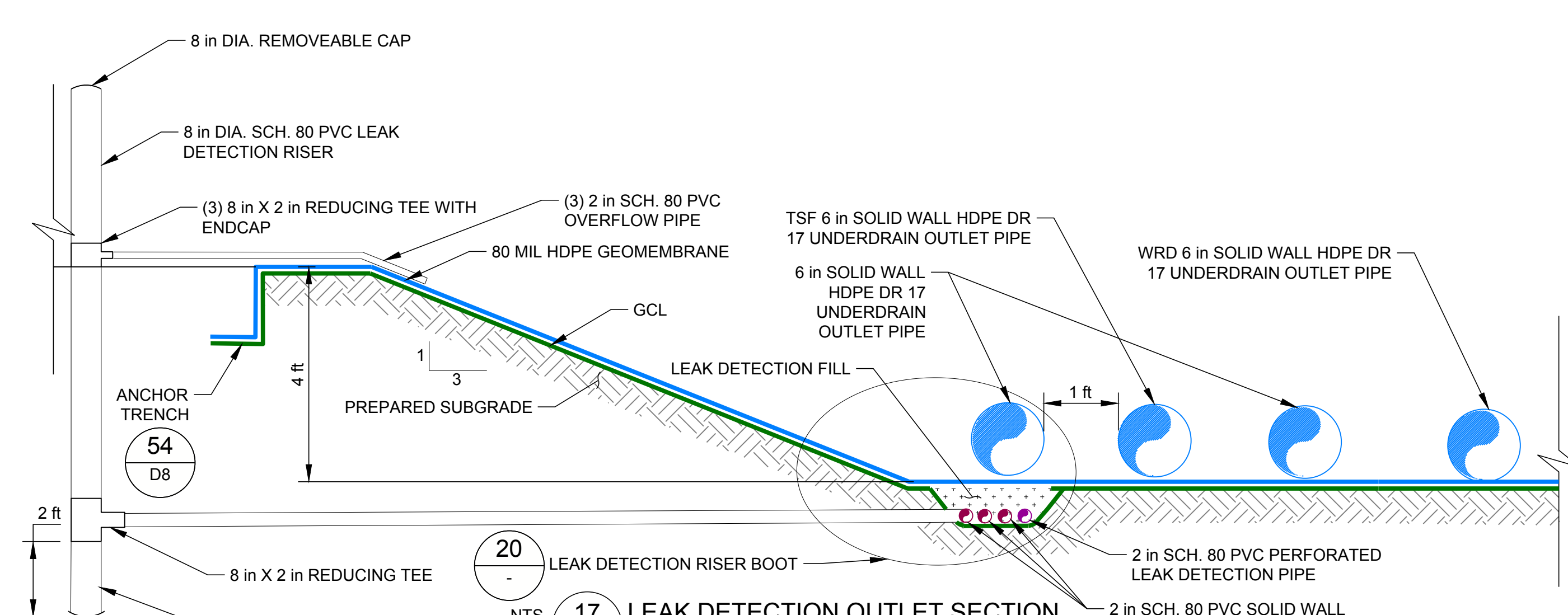
22
C15 D2

23
C16



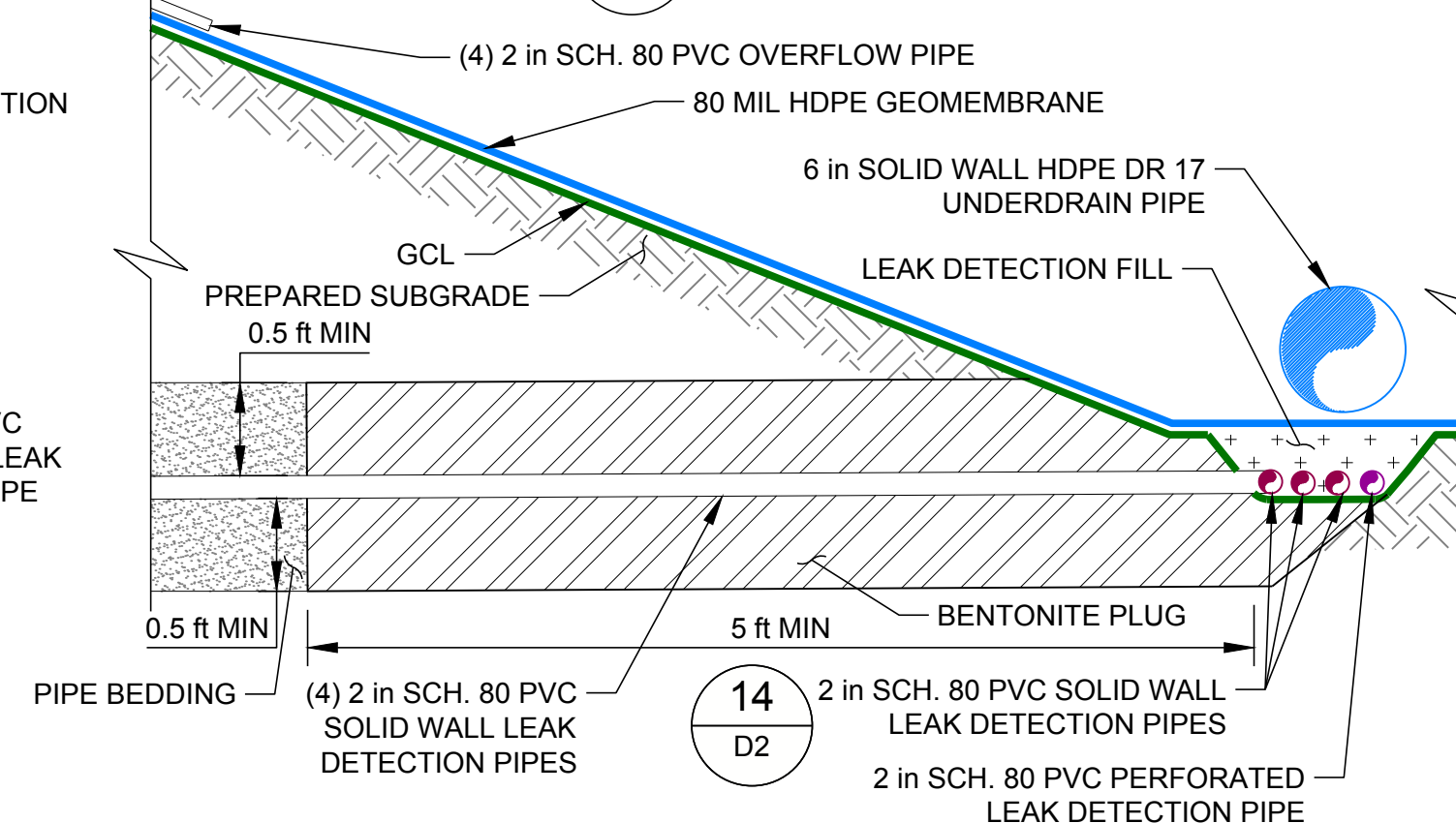
24
C15

25
C15



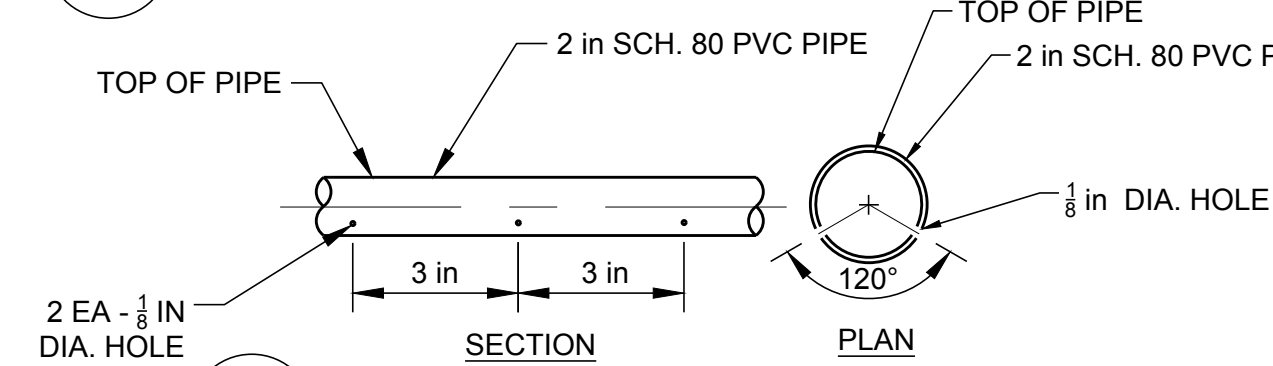
20
C16

21
C15



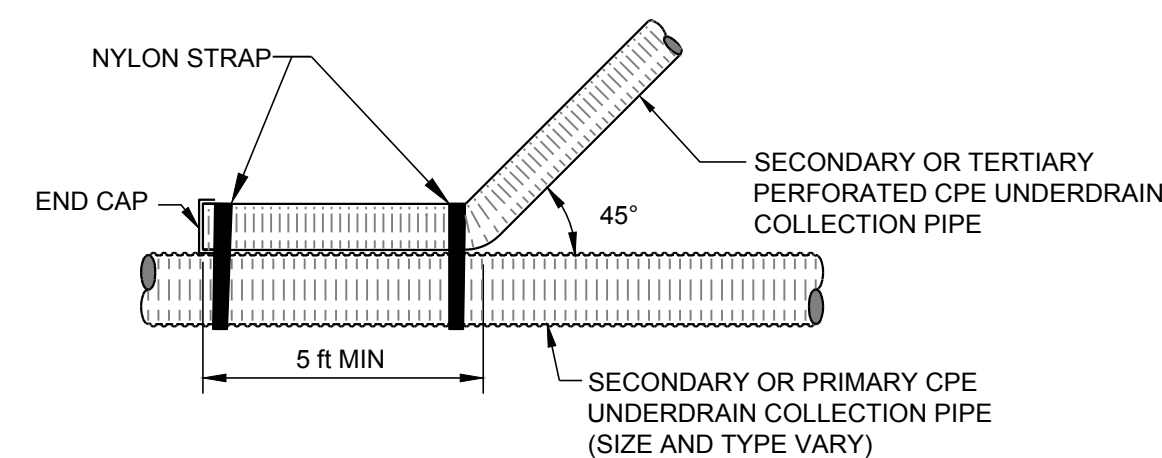
20
C16

21
C15



23
C16

24
C15



25
C15

26
C15

ISSUED FOR CONSTRUCTION

11/6/19



CLIENT
CALICO RESOURCES USA CORP.
GRASSY MOUNTAIN PROJECT
MALHEUR COUNTY, OREGON



CONSULTANT

GOLDER ASSOCIATES INC.
595 DOUBLE EAGLE COURT, SUITE 1000
RENO, NV 89521
USA
[+1] (775) 828-9604
www.golder.com



PROJECT
GRASSY MOUNTAIN
TAILINGS STORAGE FACILITY AND WASTE ROCK DUMP
DETAILED DESIGN

TITLE
DETAILS (3 OF 9)
UNDERDRAIN COLLECTION SYSTEM

PROJECT NO.
1663241

REV. 0 26 of 42

D3

0 2019-11-06 ISSUED FOR CONSTRUCTION

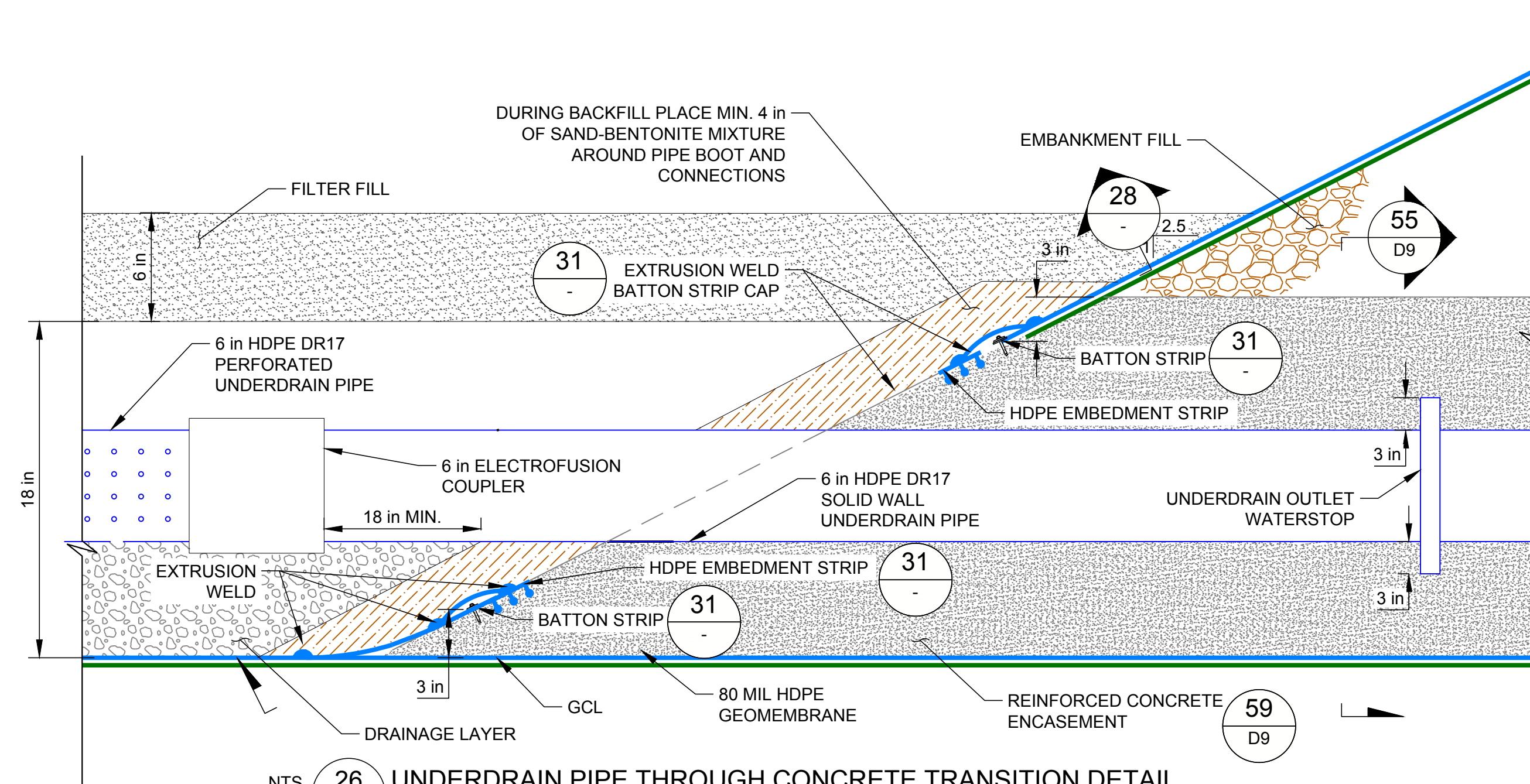
REV. YYYY-MM-DD DESCRIPTION

MDB JRP CJM RAB

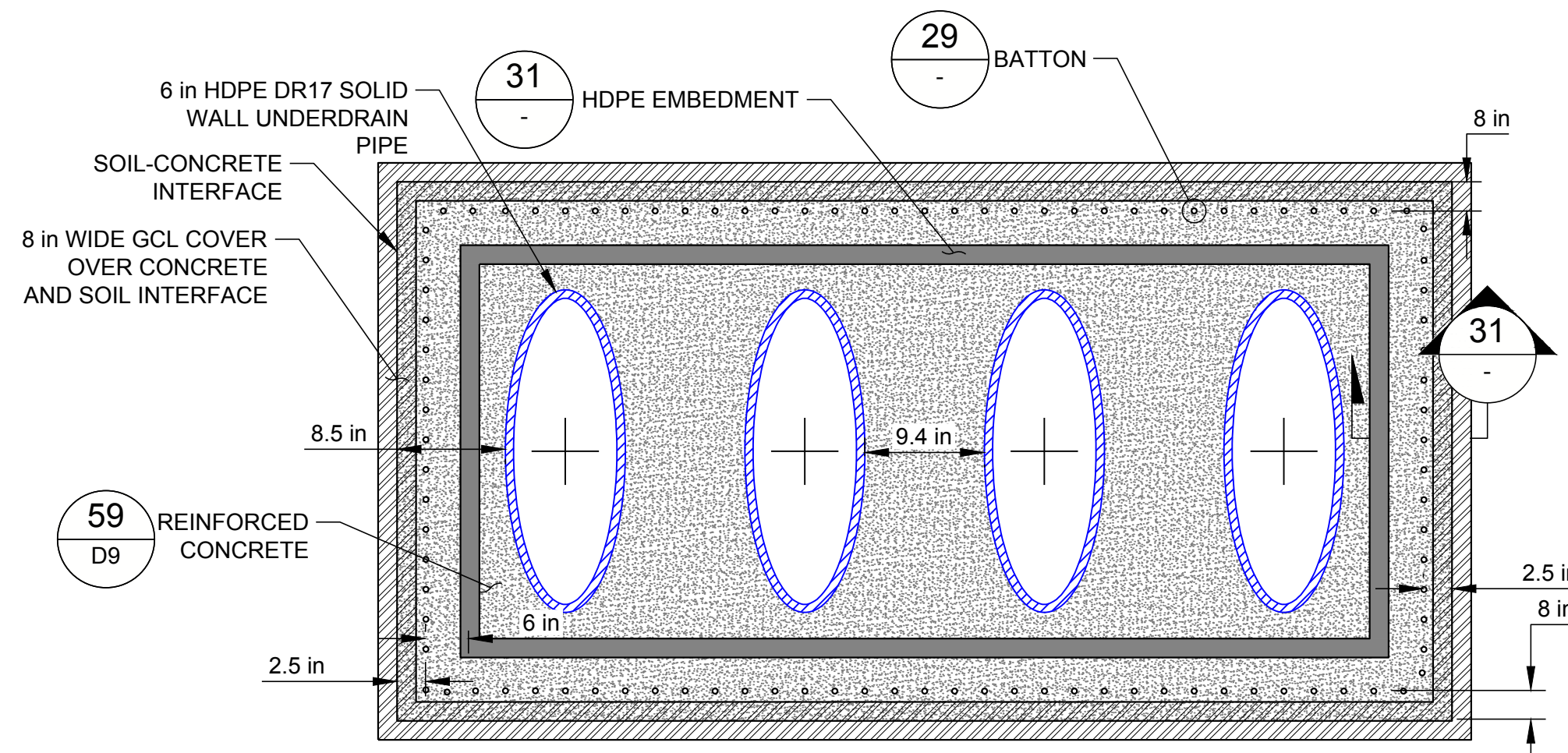
DESIGNED PREPARED REVIEWED APPROVED

1 in IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI D

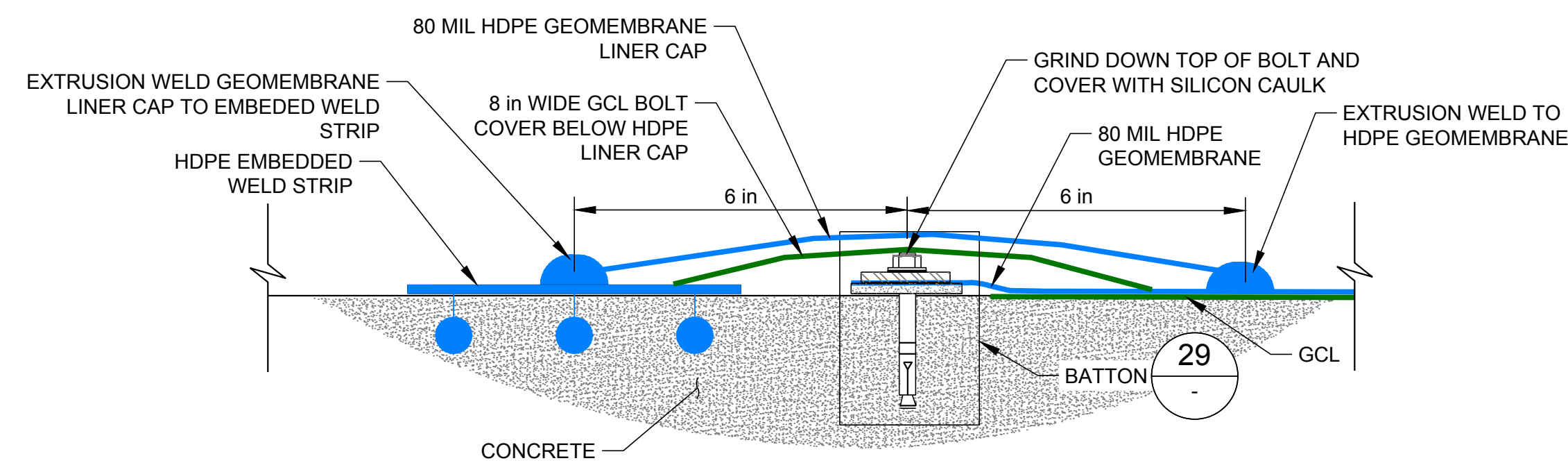
Path: I:\projects\MDA\1663241_Grassy Mountain PFS\000_Drawing\PRODUCTION\CONSOLIDATED PERMIT - File Name: 1663241_D_004_COLLECTIONPIPESDETAIL.dwg | Last Edited By: mslggraher Date: 2019-11-06 Time: 3:00:59 PM | Printed By: mslggraher Date: 2019-11-06 Time: 4:34:15 PM



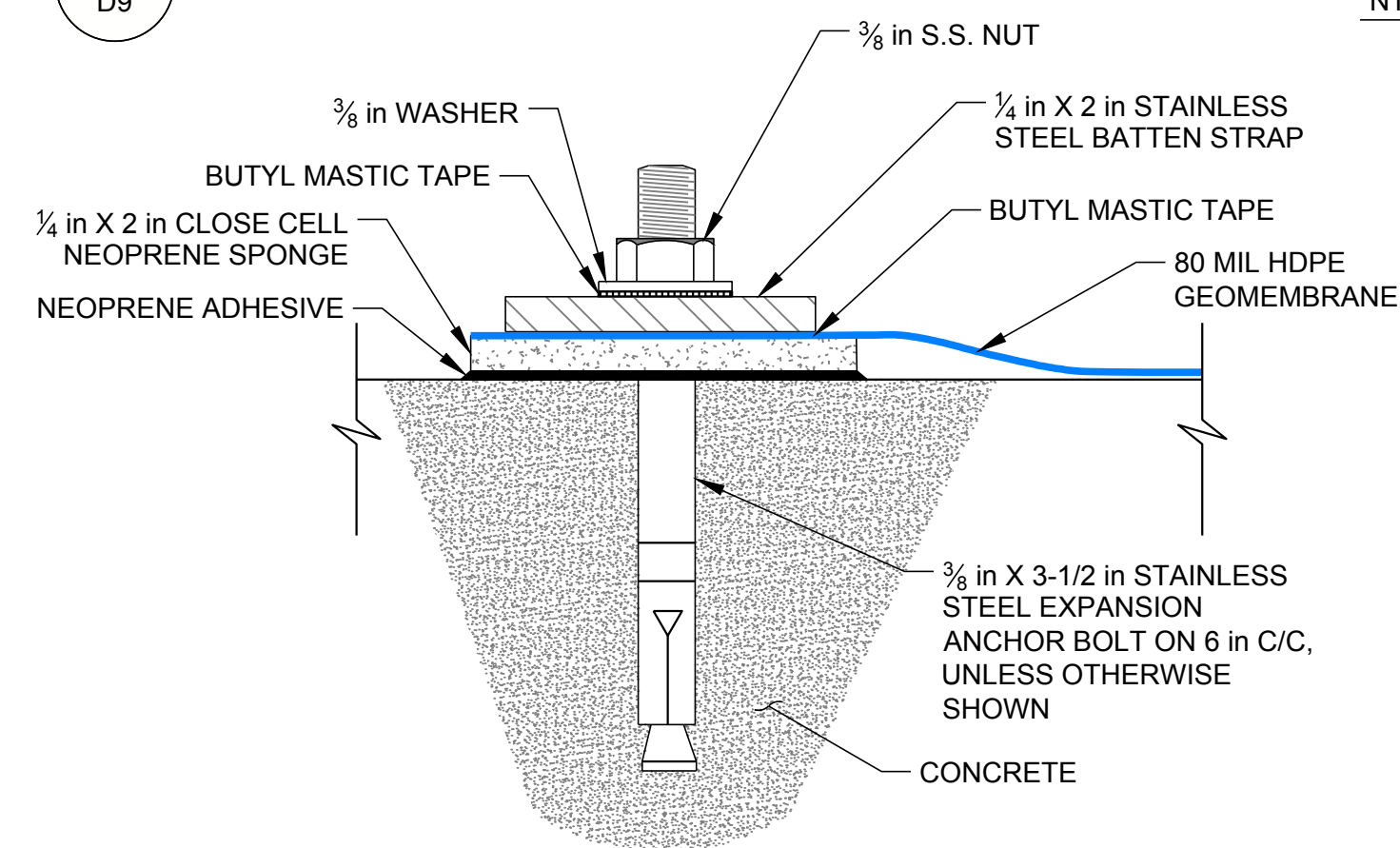
NTS 26 UNDERDRAIN PIPE THROUGH CONCRETE TRANSITION DETAIL



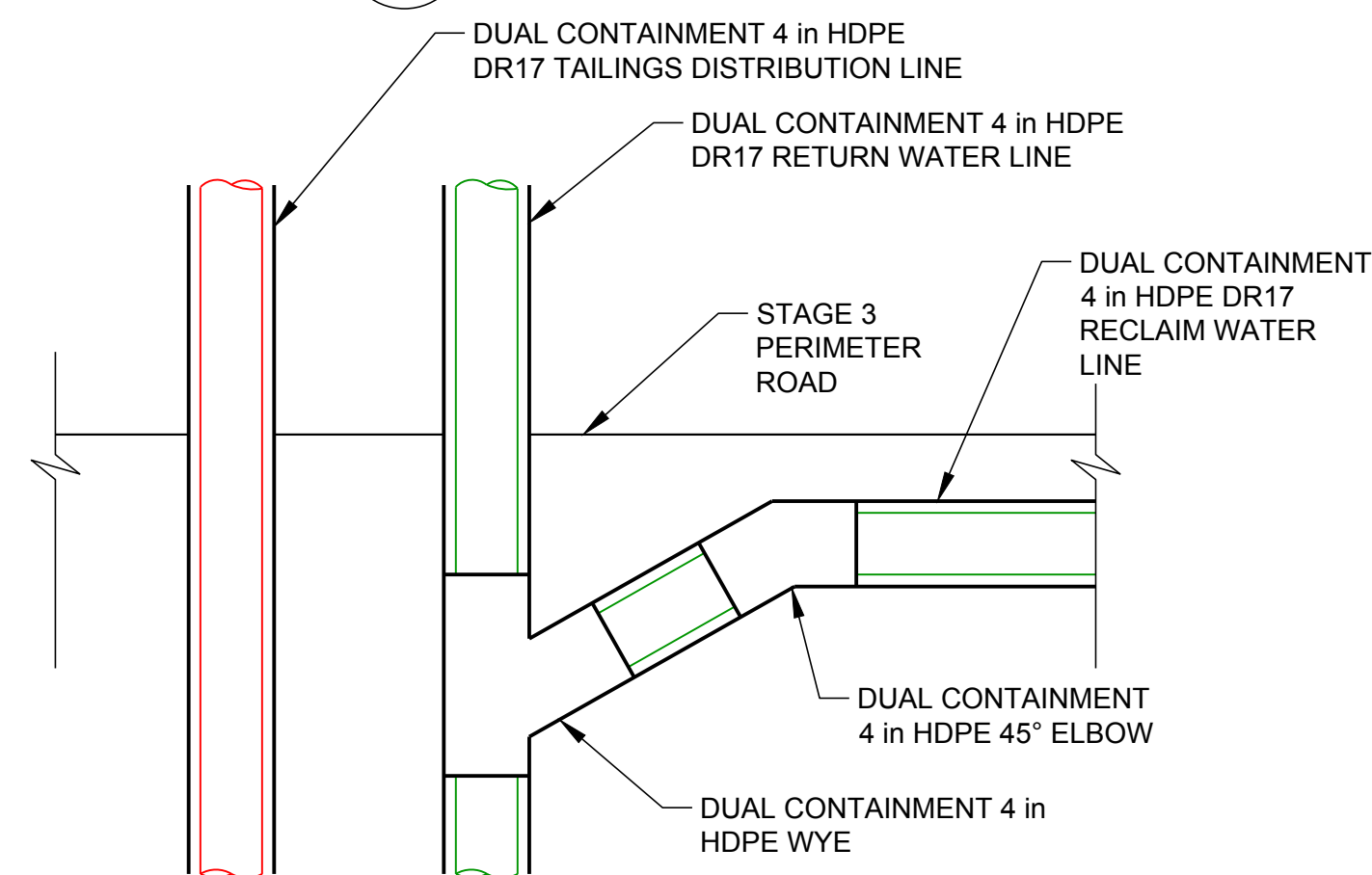
NTS 28 ANCHOR BLOCK EMBED PLAN VIEW



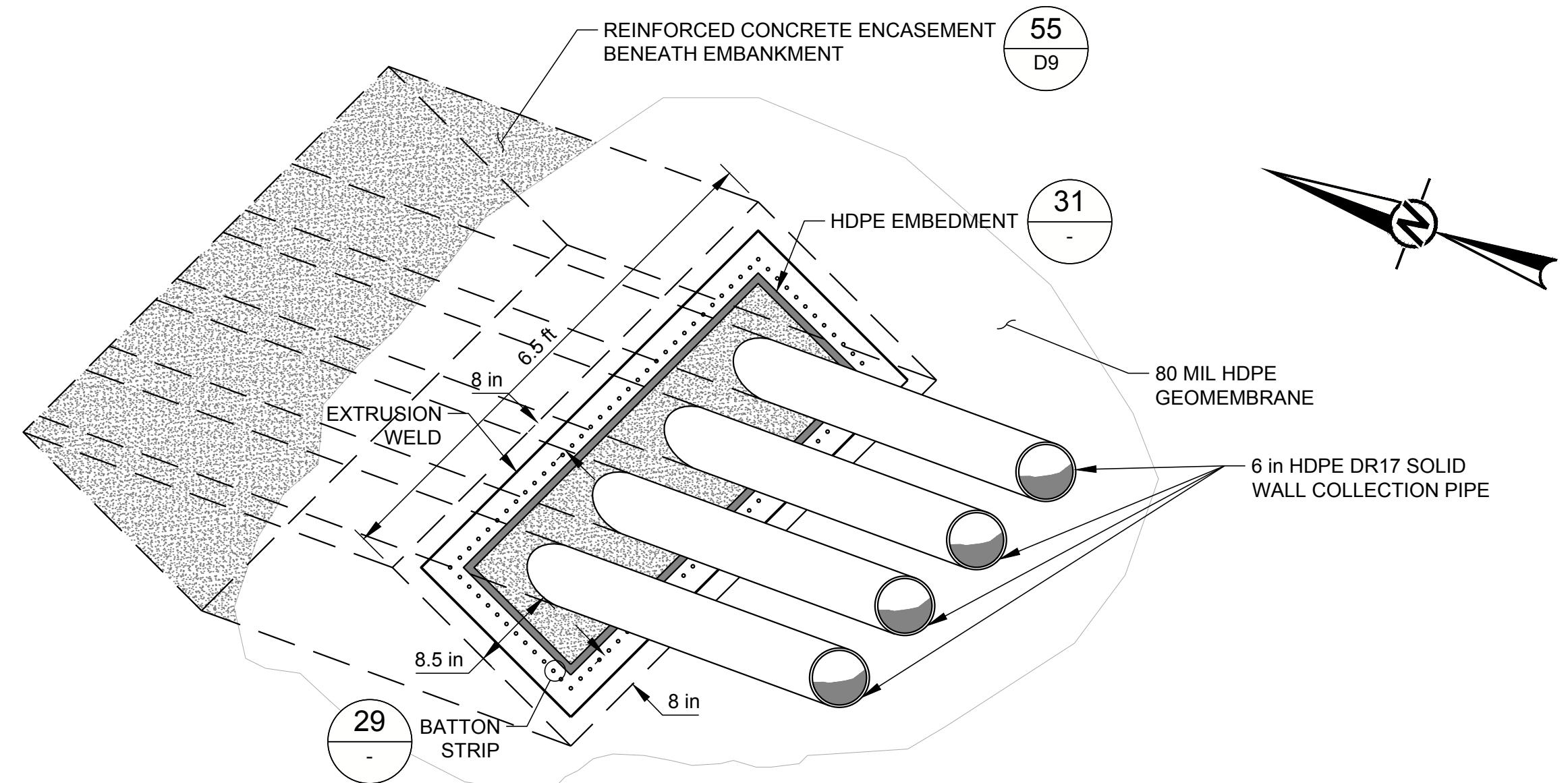
NTS 31 BATTON STRIP CAP DETAIL



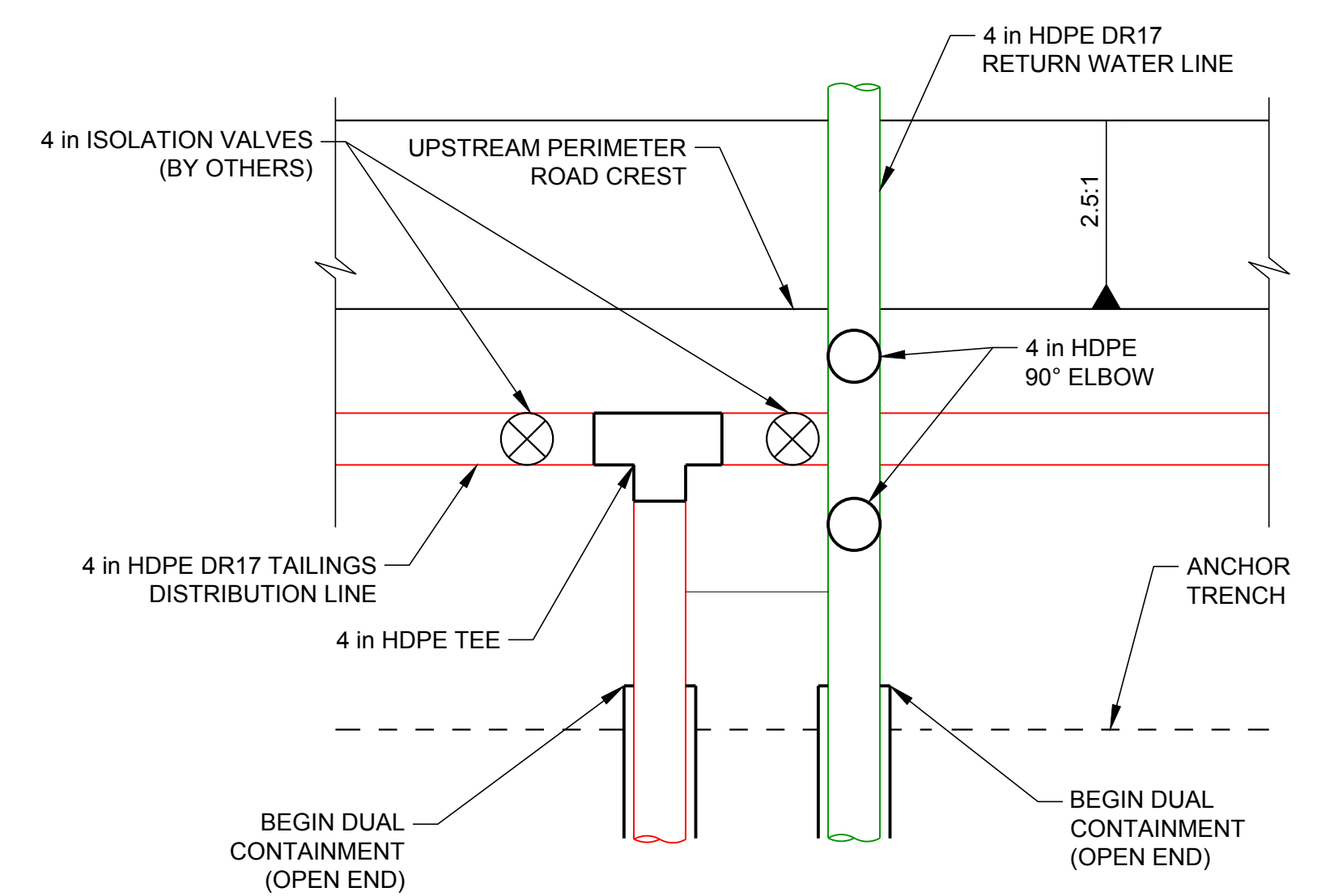
NTS 29 BATTON STRIP DETAIL



NTS 32 RECLAIM WATER LINE DETAIL



NTS 27 UNDERDRAIN PIPE THROUGH CONCRETE TRANSITION ISOMETRIC



NTS 30 TAILINGS DELIVERY LINE DETAIL

LEGEND

- GCL
- 80 MIL HDPE GEOMEMBRANE

NOTE

- TSF AND WRD UNDERDRAIN PIPES ONLY WHERE SHOWN ON SHEET C15.

ISSUED FOR CONSTRUCTION

CLIENT
CALICO RESOURCES USA CORP.
GRASSY MOUNTAIN PROJECT
MALHEUR COUNTY, OREGON



CONSULTANT

GOLDER ASSOCIATES INC.
595 DOUBLE EAGLE COURT, SUITE 1000
RENO, NV 89521
USA
[+1] (775) 828-9604
www.golder.com



PROJECT
GRASSY MOUNTAIN
TAILINGS STORAGE FACILITY AND WASTE ROCK DUMP
DETAILED DESIGN

TITLE
DETAILS (4 OF 9)
UNDERDRAIN COLLECTION SYSTEM, RECLAIM WATER, AND
TAILINGS DISTRIBUTION

PROJECT NO.
1663241

REV. 0 27 OF 42 DRAWING D4

0 2019-11-06 ISSUED FOR CONSTRUCTION

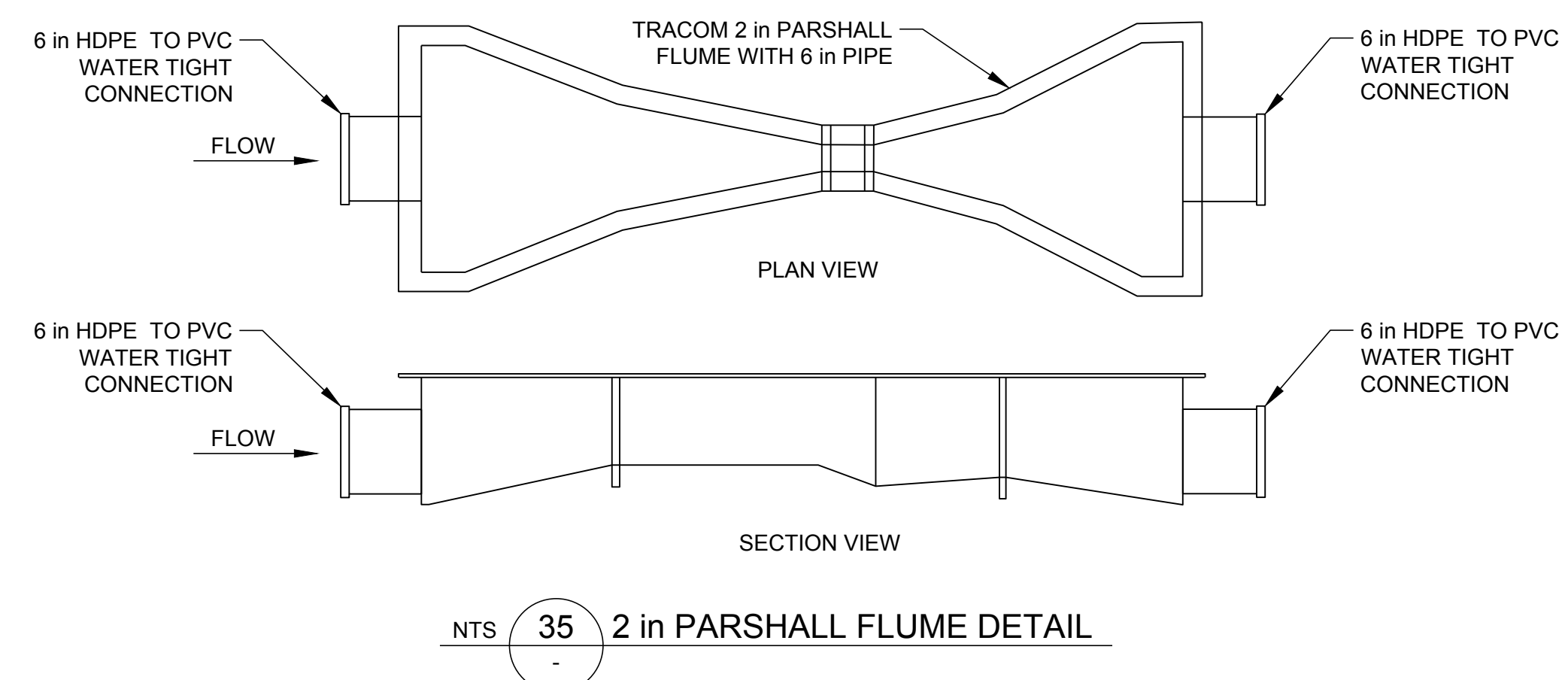
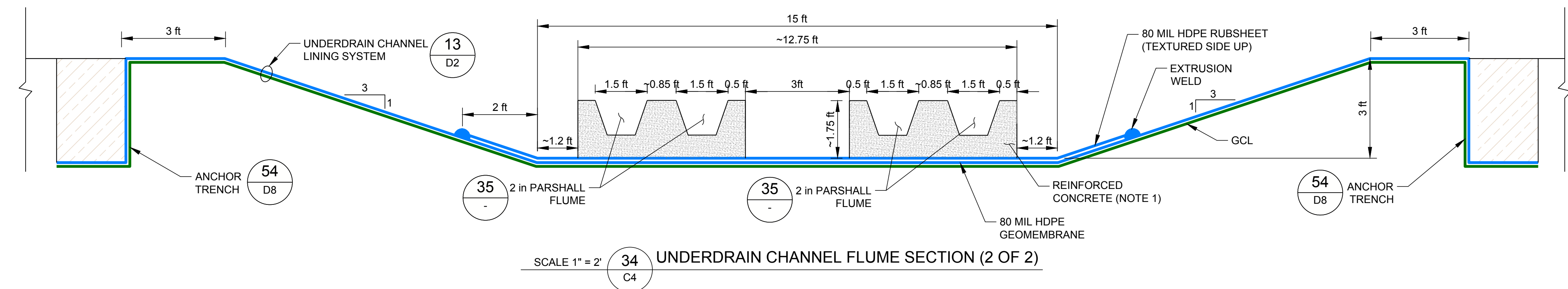
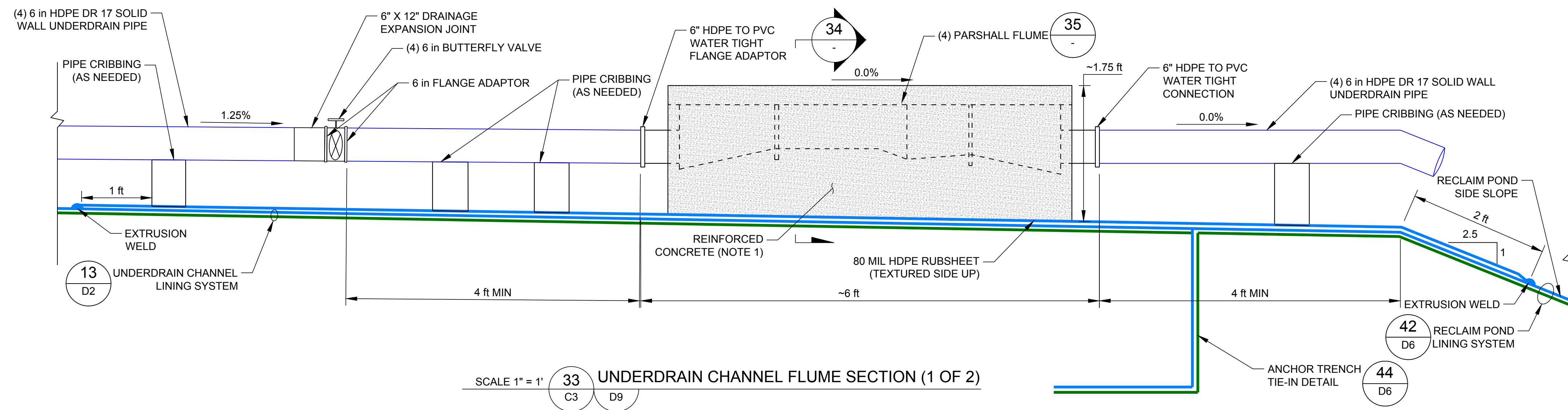
REV. YYYY-MM-DD DESCRIPTION

MDB JRP CJM RAB

DESIGNED PREPARED REVIEWED APPROVED



1 in IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI D



NOTE

1. CONCRETE REINFORCEMENT DETAILS SHOWN ON DRAWING D9.

LEGEND

80 MIL HDPE GEOMEMBRANE

GCL

 GCL

ISSUED FOR CONSTRUCTION

CLIENT
CALICO RESOURCES USA CORP.
GRASSY MOUNTAIN PROJECT
MALHEUR COUNTY, OREGON

CONSULTANT

GOLDER ASSOCIATES INC.
595 DOUBLE EAGLE COURT, SUITE 1000
RENO, NV 89521
USA
[+1] (775) 828-9604
www.golder.com

PROJECT
GRASSY MOUNTAIN
TAILINGS STORAGE FACILITY AND WASTE ROCK DUMP
DETAILED DESIGN

TITLE
DETAILS (5 OF 9)
UNDERDRAIN FLUME

PROJECT NO.
1663241

REV. 28 of 42
0

DRAWING
D5

0	2019-11-06	ISSUED FOR CONSTRUCTION
---	------------	-------------------------

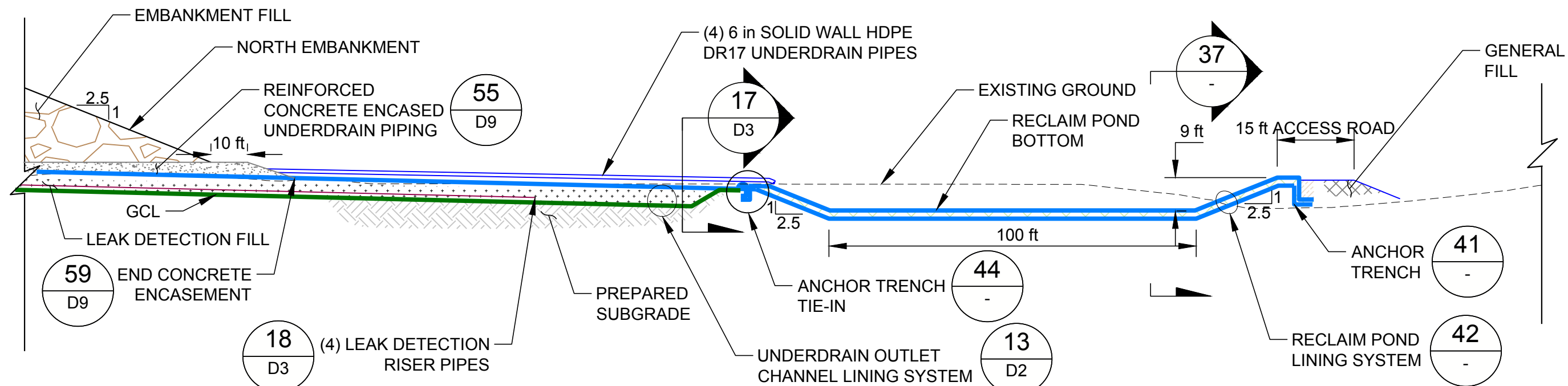
REV.	YYYY-MM-DD	DESCRIPTION
------	------------	-------------

MDB	JRP	CJM	RAB
-----	-----	-----	-----

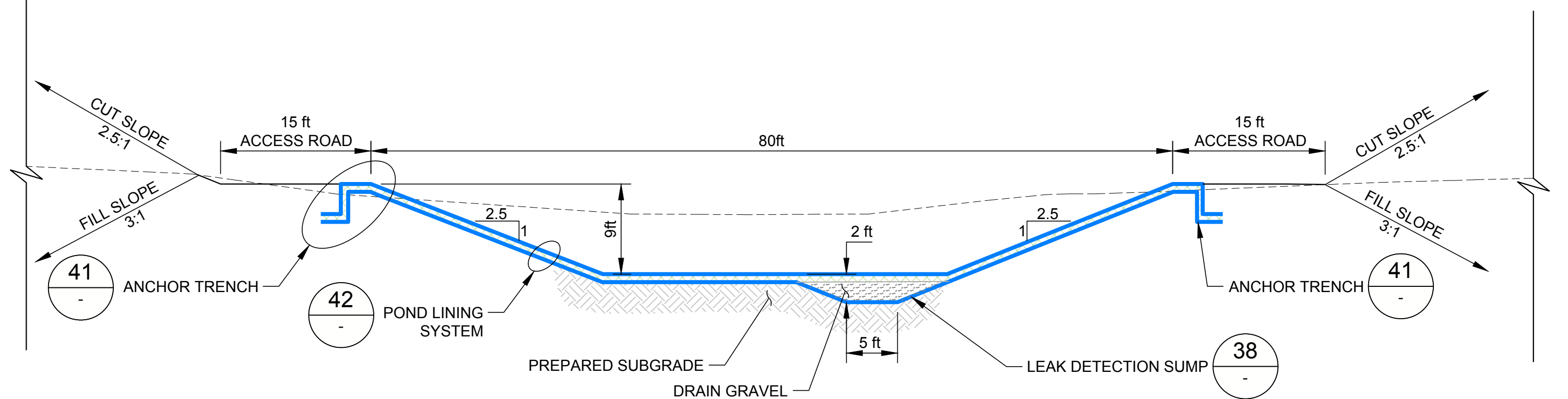
DESIGNED PREPARED REVIEWED APPROVED

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

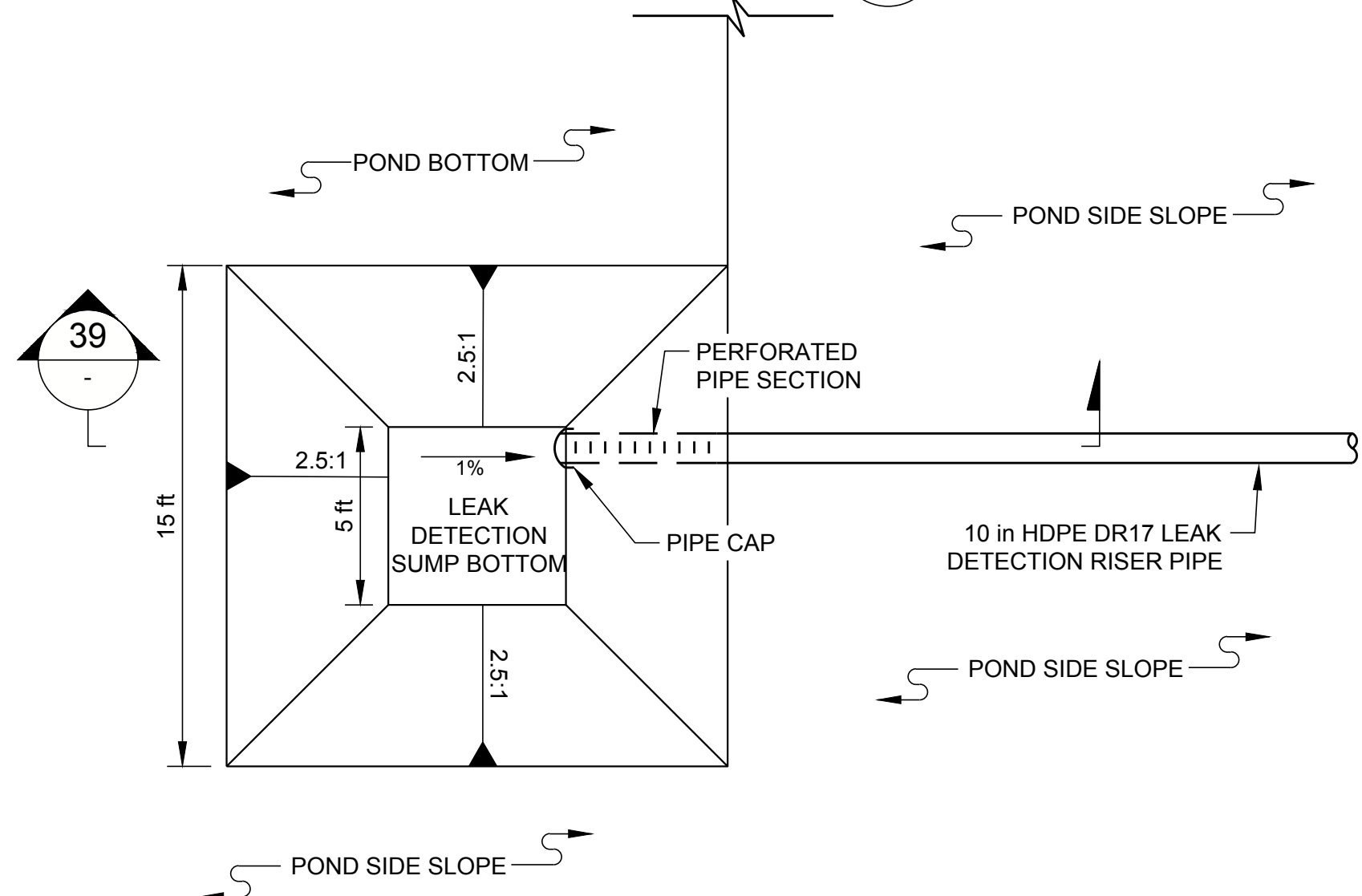
Path: \\verod\delm\DAI\1663241_Grassy Mountain PFS\000_Drawing\PRODUCTION\CONSOLIDATED PERMIT\ File Name: 1663241_D_005_CALPIPEBOOTDETAILS.dwg | Last Edited By: msteingrader Date: 2019-11-06 Time: 3:52:35 PM | Printed By: JAPhile Date: 2019-11-06 Time: 4:35:18 PM



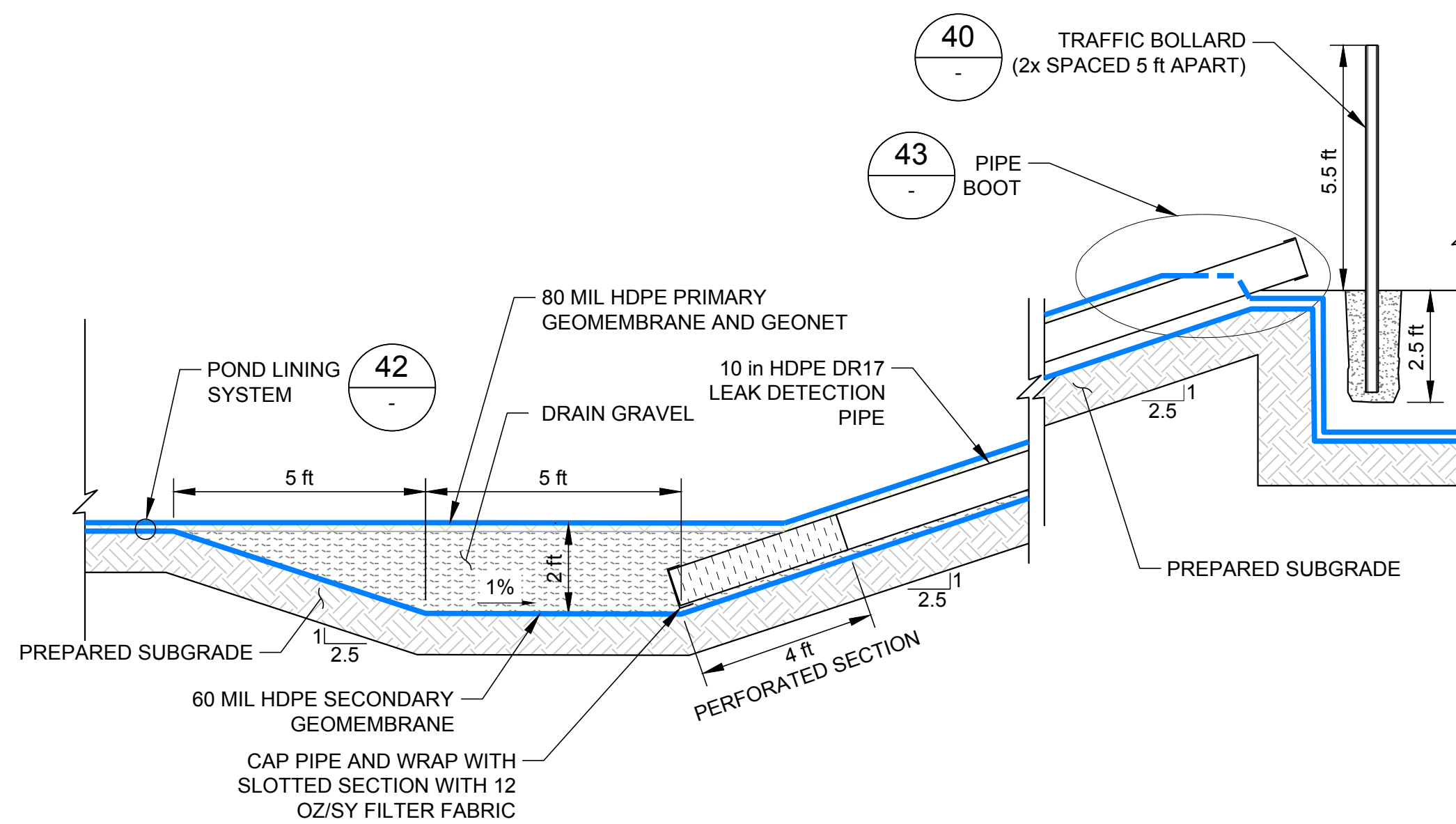
NTS 36 RECLAIM OUTLET CHANNEL AND POND SECTION



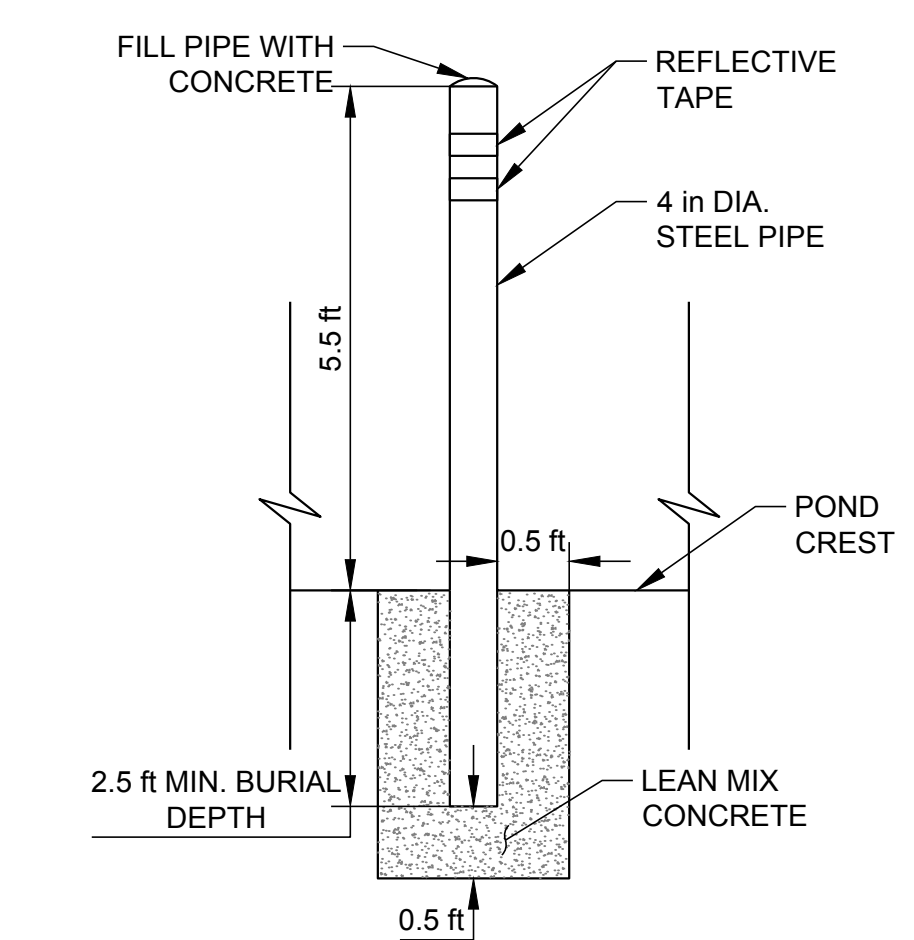
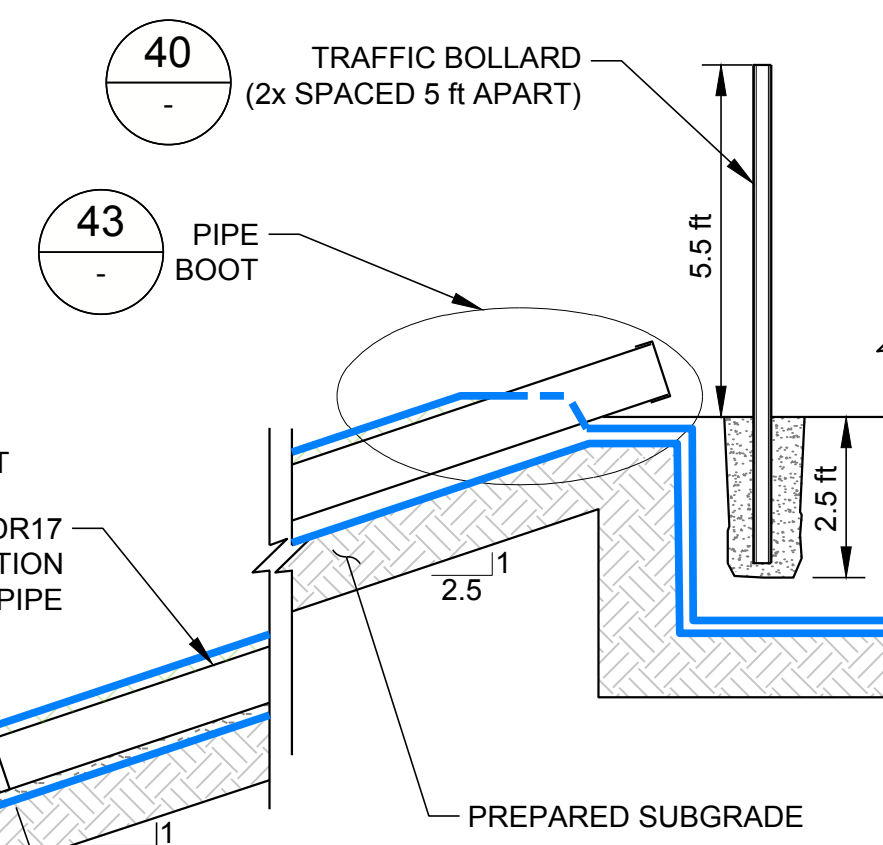
SCALE: 1" = 10' 37 RECLAIM POND SECTION



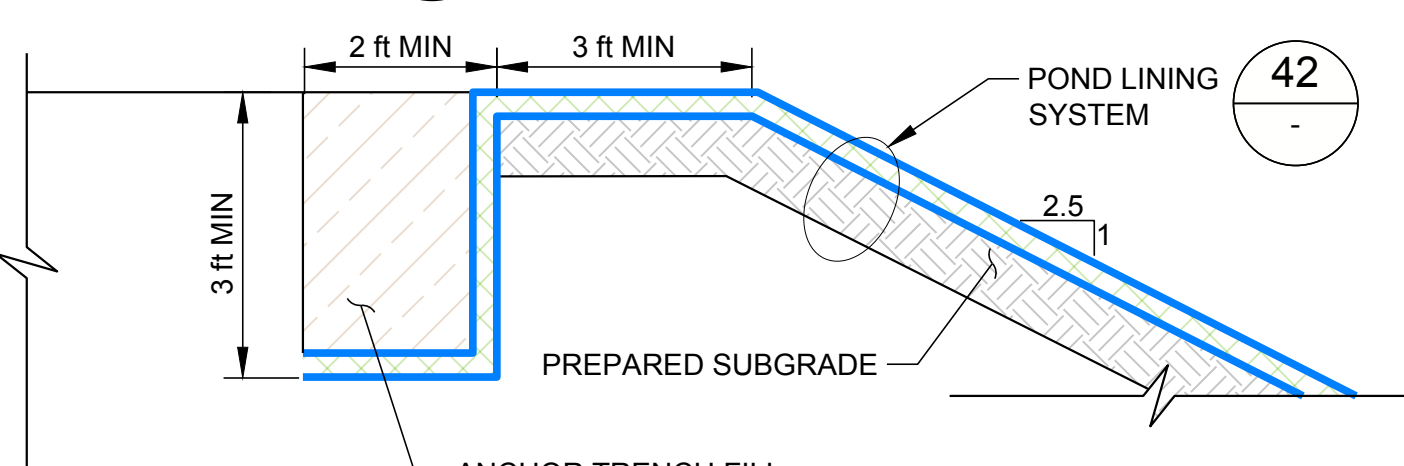
NTS 39 LEAK DETECTION SUMP DETAIL



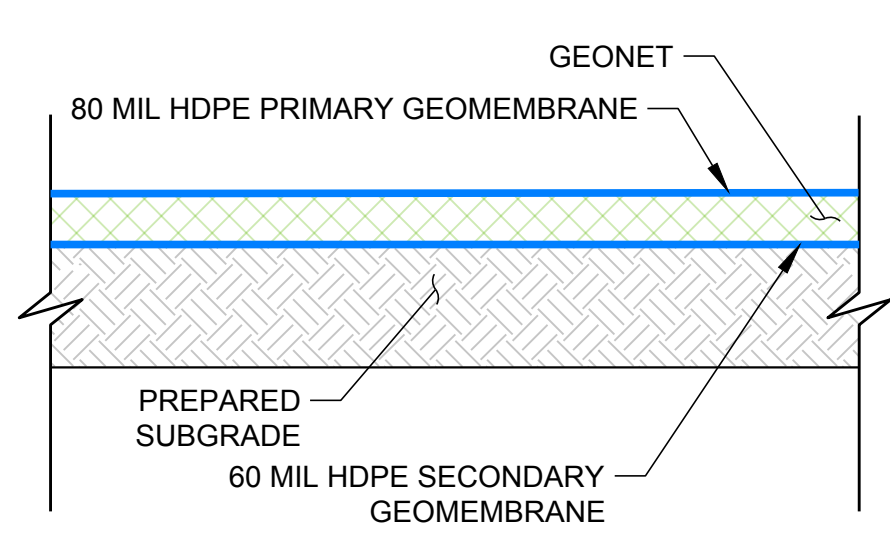
NTS 39 LEAK DETECTION SUMP SECTION



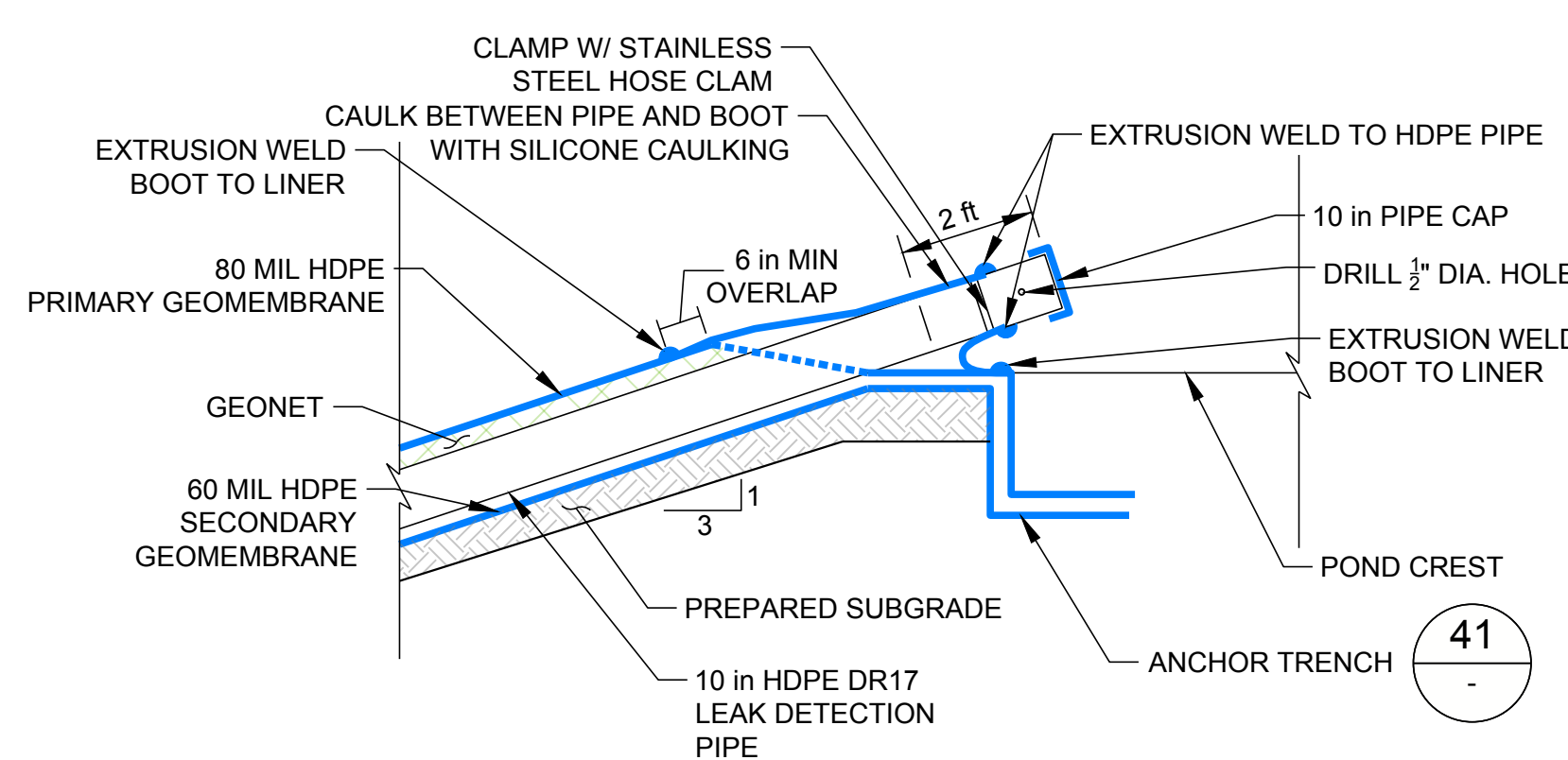
NTS 40 TRAFFIC BOLLARD TYPICAL DETAIL



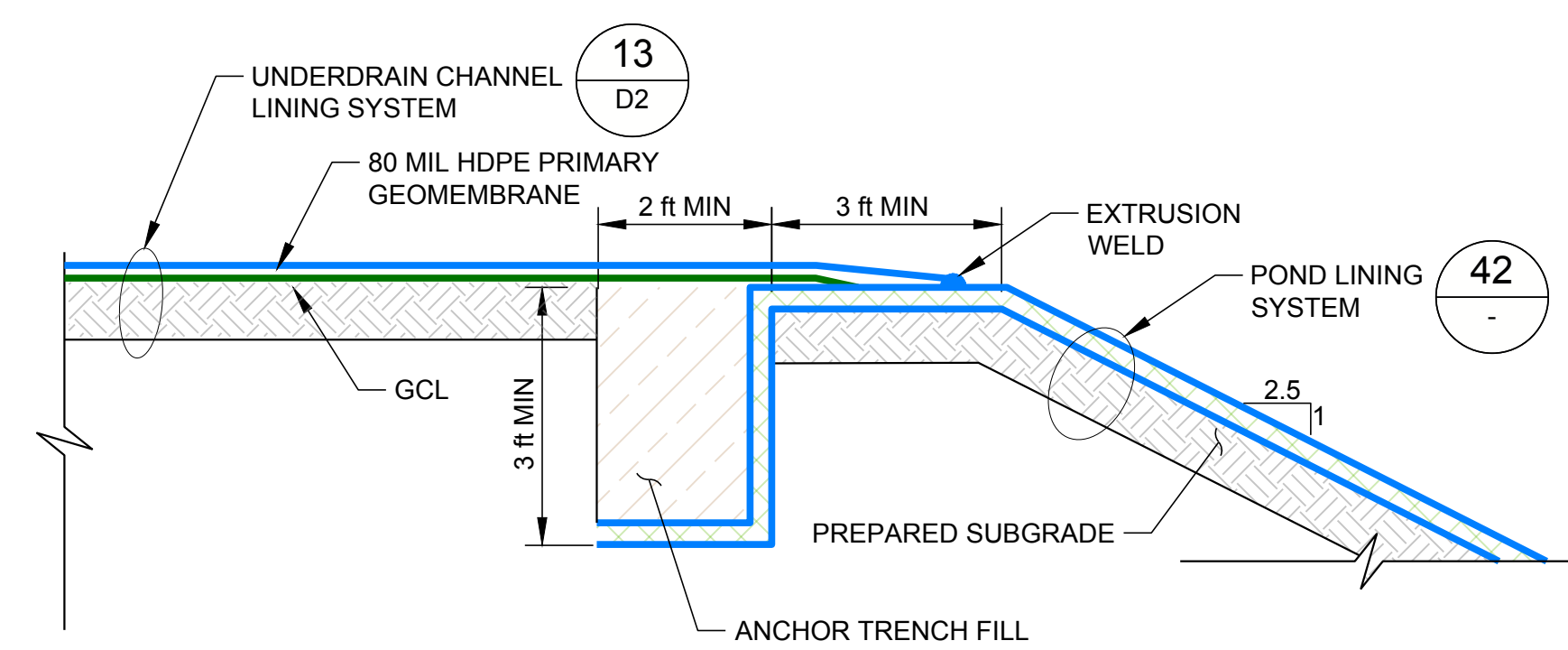
NTS 41 POND ANCHOR TRENCH DETAIL



NTS 42 POND LINING SYSTEM



NTS 43 POND LEAK DETECTION RISER PIPE BOOT DETAIL



NTS 44 ANCHOR TRENCH TIE IN DETAIL

LEGEND
GCL
80 MIL HDPE GEOMEMBRANE

ISSUED FOR CONSTRUCTION

CLIENT
CALICO RESOURCES USA CORP.
GRASSY MOUNTAIN PROJECT
MALHEUR COUNTY, OREGON



CONSULTANT

GOLDER ASSOCIATES INC.
595 DOUBLE EAGLE COURT, SUITE 1000
RENO, NV 89521
USA
[+1] (775) 828-9604
www.golder.com



PROJECT
GRASSY MOUNTAIN
TAILINGS STORAGE FACILITY AND WASTE ROCK DUMP
DETAILED DESIGN

TITLE
DETAILS (6 OF 9)
RECLAIM POND

PROJECT NO.
1663241

REV. 0 29 OF 42 DRAWING D6

0 2019-11-06 ISSUED FOR CONSTRUCTION

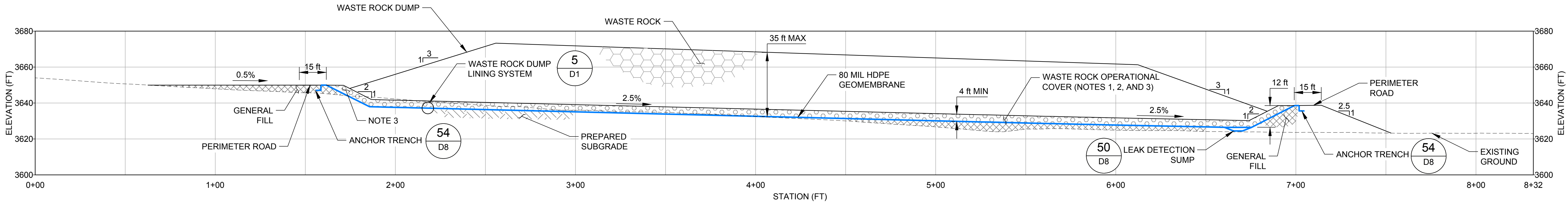
REV. YYYY-MM-DD DESCRIPTION

MDB JRP CJM RAB

DESIGNED PREPARED REVIEWED APPROVED

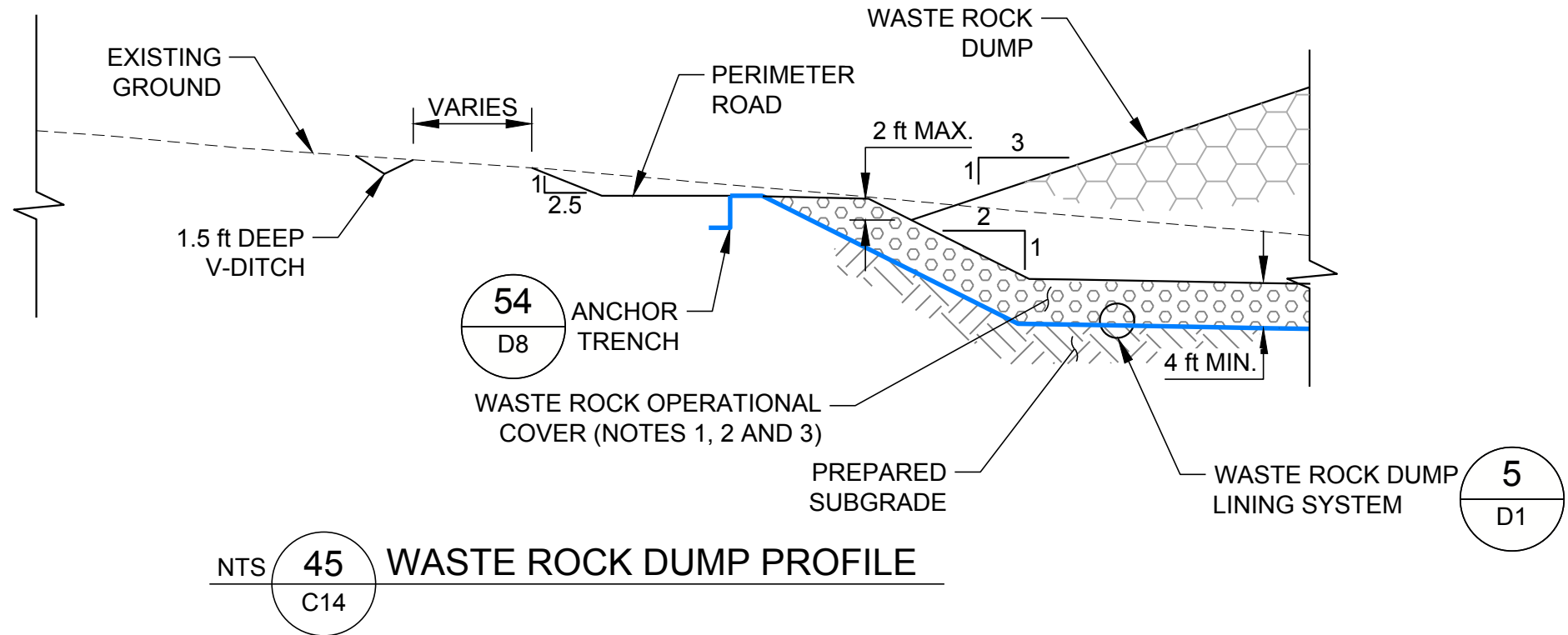
1 in IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI D

Path: I:\projects\MDA\1663241_Grassy Mountain PFS\000_Drawing\PRODUCTION\CONSOLIDATED PERMIT | File Name: D6 DETAILS.dwg | Last Edited By: mstingard | Date: 2019-11-06 Time: 3:54:10 PM | Printed By: jefrice | Date: 2019-11-06 Time: 4:35:44 PM



SCALE 1" = 30'
VERT. SCALE 1" = 15'

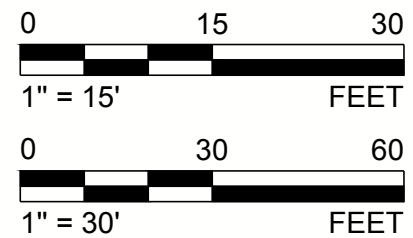
A WASTE ROCK DUMP PROFILE
C14



NTS **45** WASTE ROCK DUMP PROFILE
C14

- NOTES**
1. MINIMUM 4 FT WASTE ROCK OPERATIONAL COVER SHALL REMAIN AT ALL TIMES DURING OPERATION TO BE REMOVED DURING RECLAMATION OF WASTE ROCK DUMP.
 2. OPERATIONAL COVER SHALL BE WASTE ROCK WITH LESS THAN 3 in MAX PARTICLE SIZE.
 3. OPERATIONAL COVER ON PAD SIDE SLOPES SHALL BE DOZER PLACED FROM TOE UP TO DESIGN ELEVATION.

- LEGEND**
- WASTE ROCK DUMP LINING SYSTEM **5** D1
 - EXISTING GROUND



ISSUED FOR CONSTRUCTION



REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
0	2019-11-06	ISSUED FOR CONSTRUCTION	MDB	JRP	CJM	RAB

CLIENT
CALICO RESOURCES USA CORP.
GRASSY MOUNTAIN PROJECT
MALHEUR COUNTY, OREGON

CONSULTANT

GOLDER

GOLDER ASSOCIATES INC.
595 DOUBLE EAGLE COURT, SUITE 1000
RENO, NV 89521
USA
[+1] (775) 828-9604
www.golder.com

PROJECT
GRASSY MOUNTAIN
TAILINGS STORAGE FACILITY AND WASTE ROCK DUMP
DETAILED DESIGN

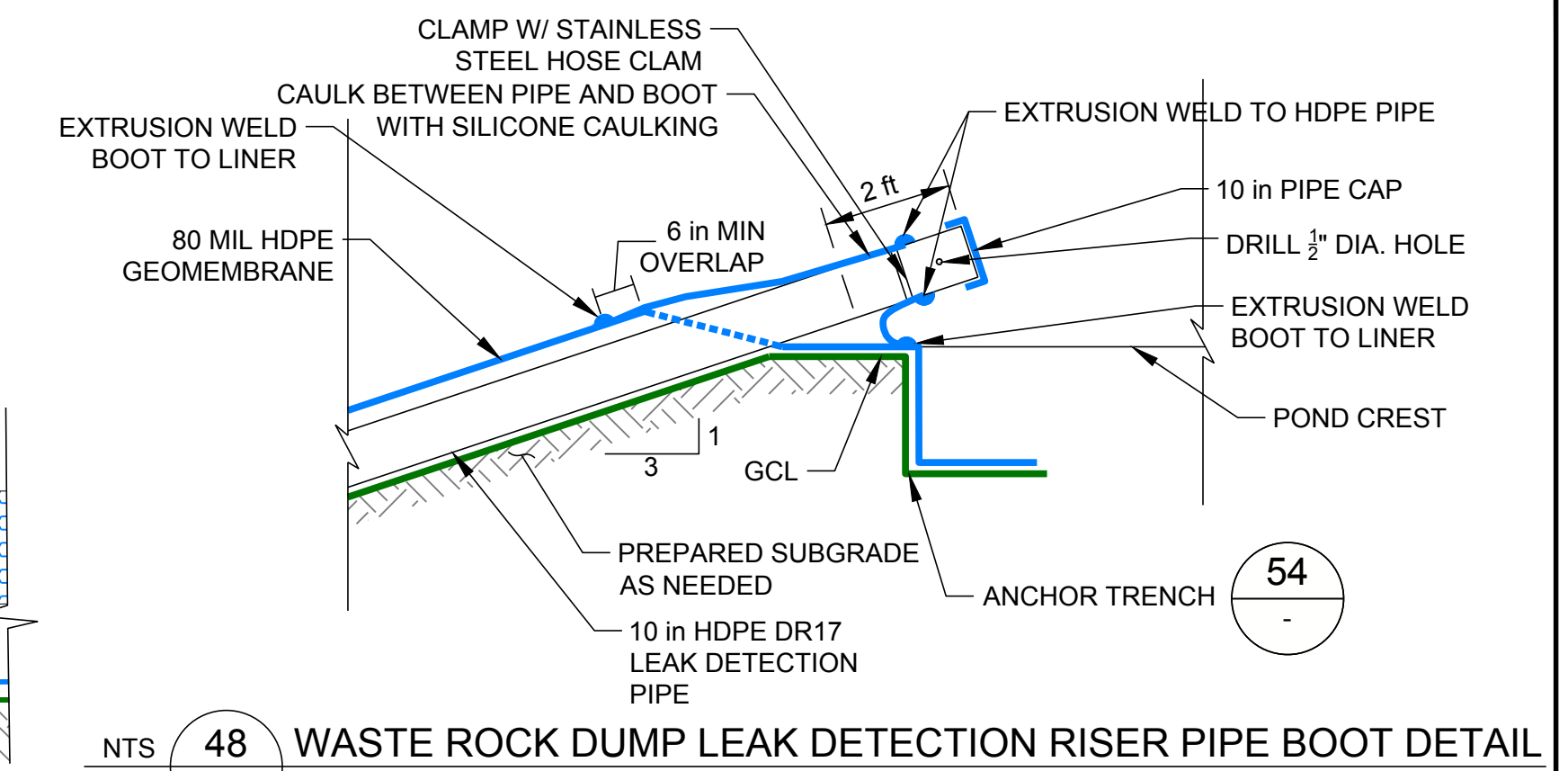
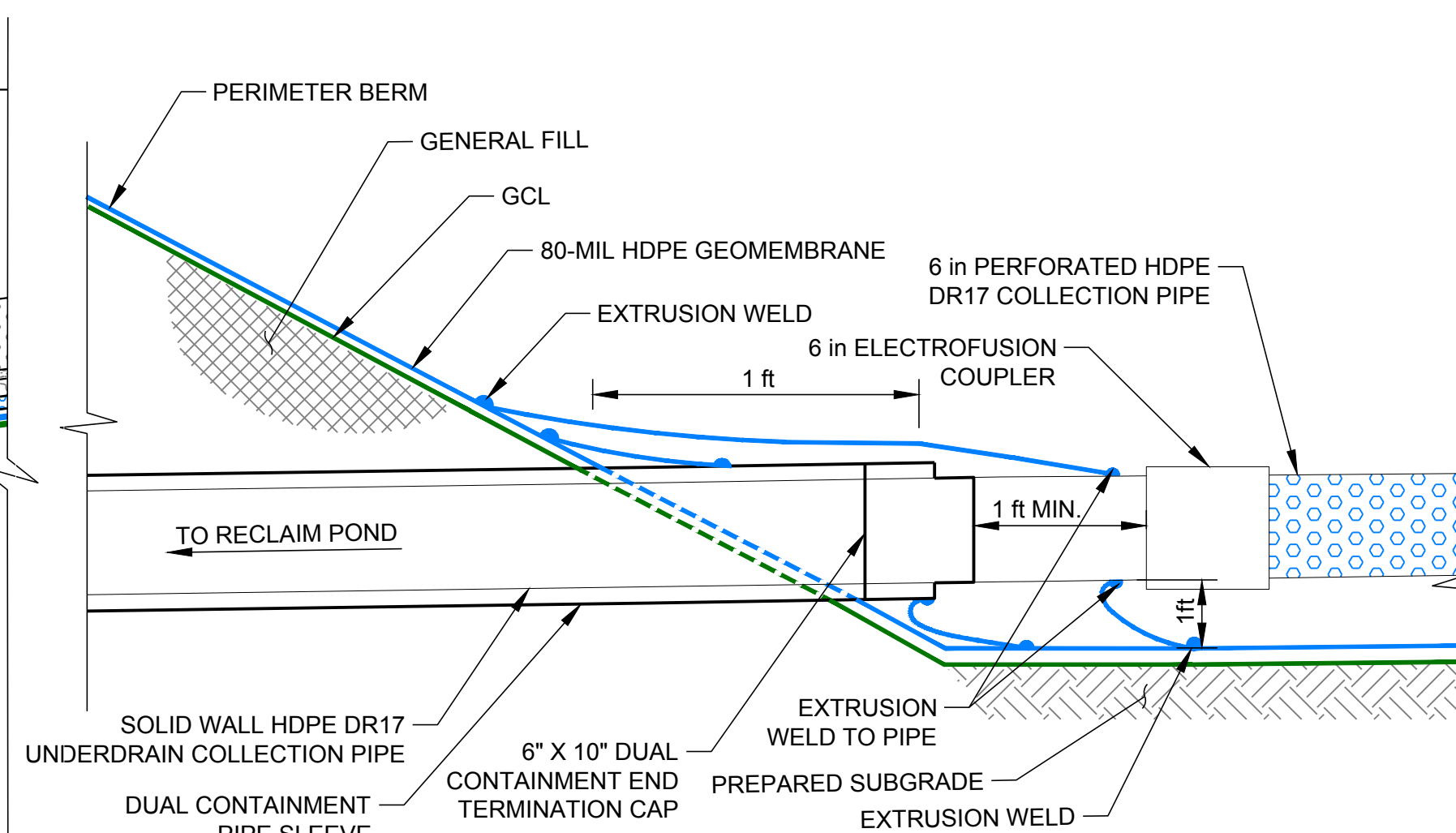
TITLE
DETAILS (7 OF 9)
WASTE ROCK DUMP

PROJECT NO.
1663241

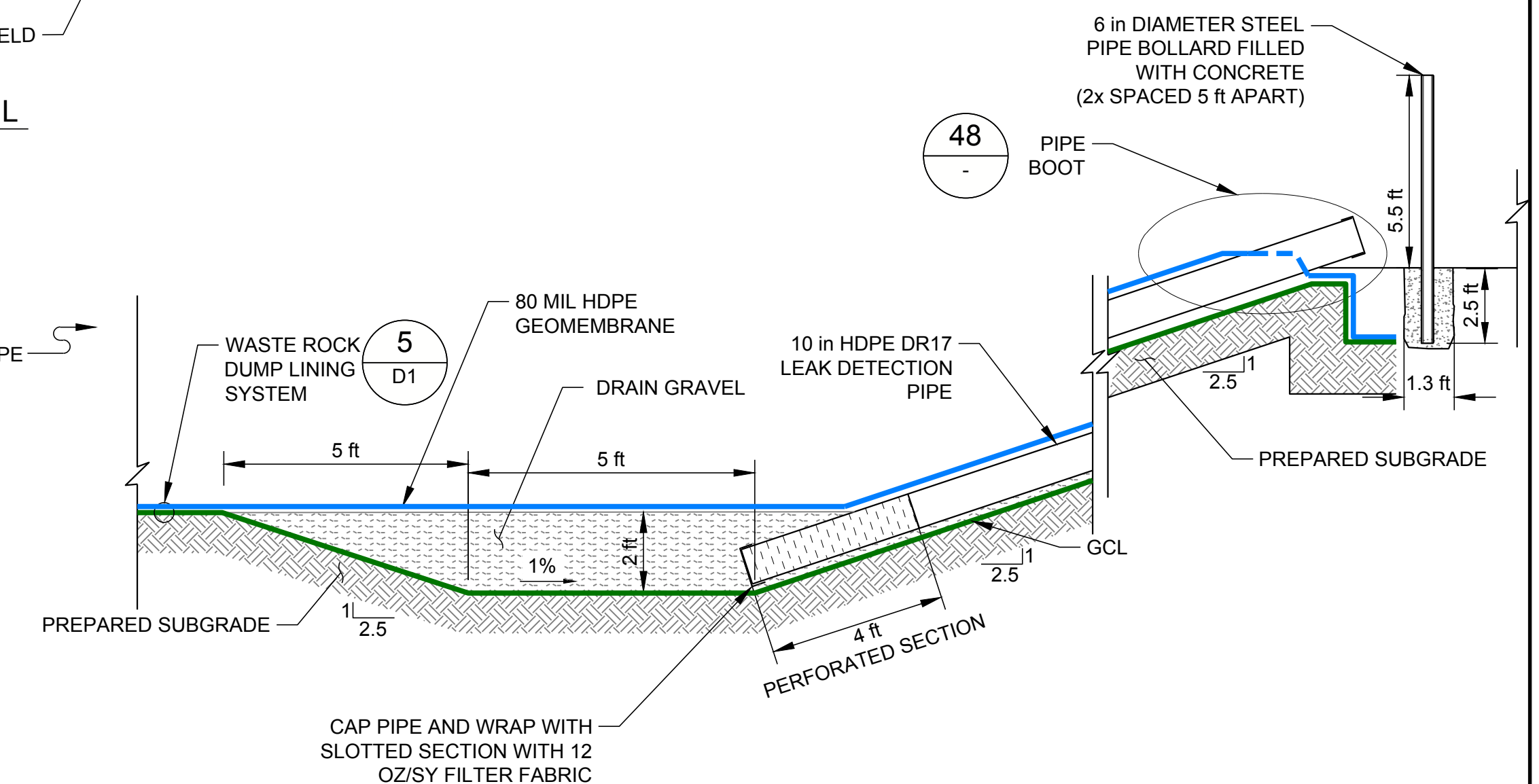
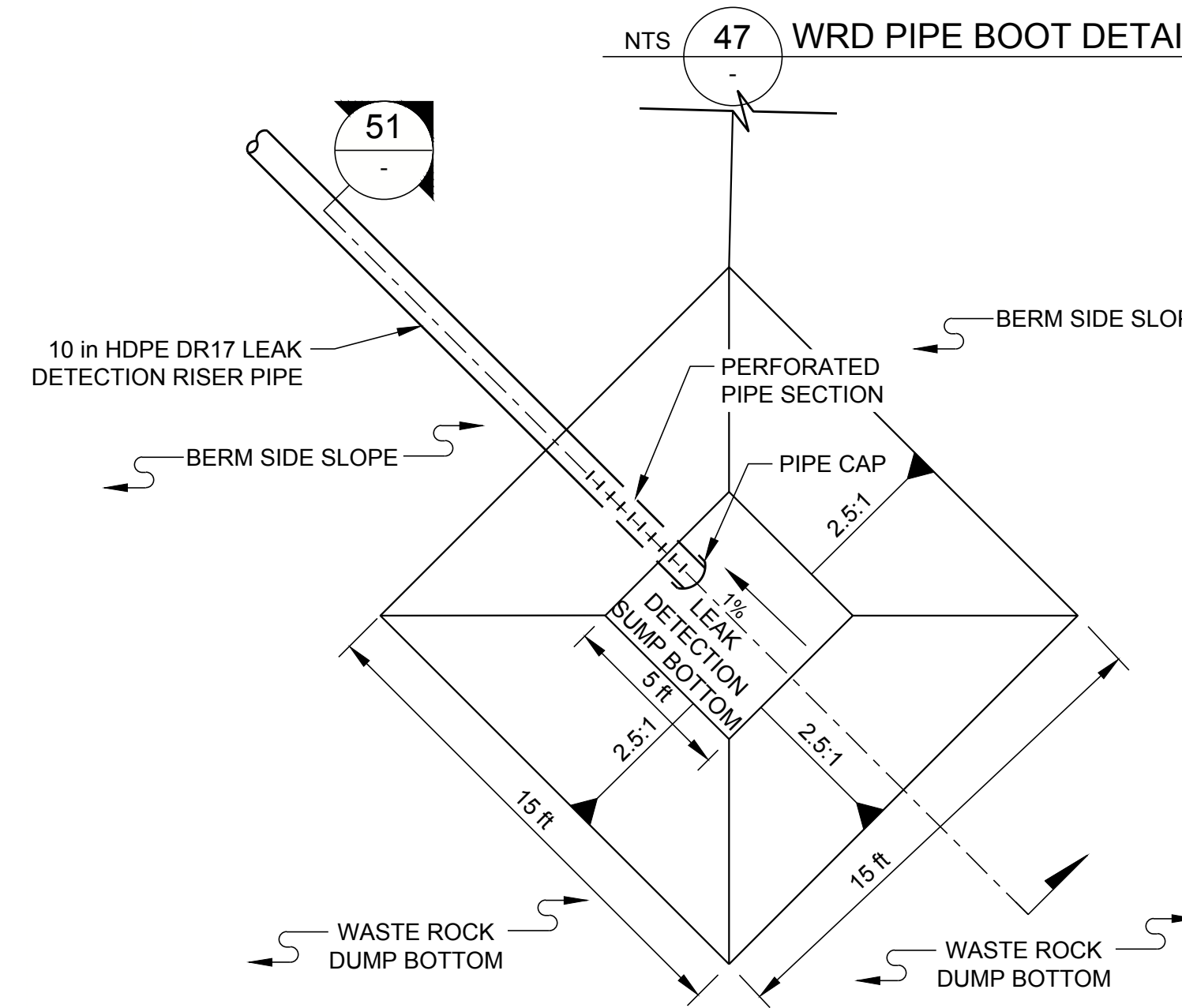
REV. 0

30 of 42

DRAWING
D7

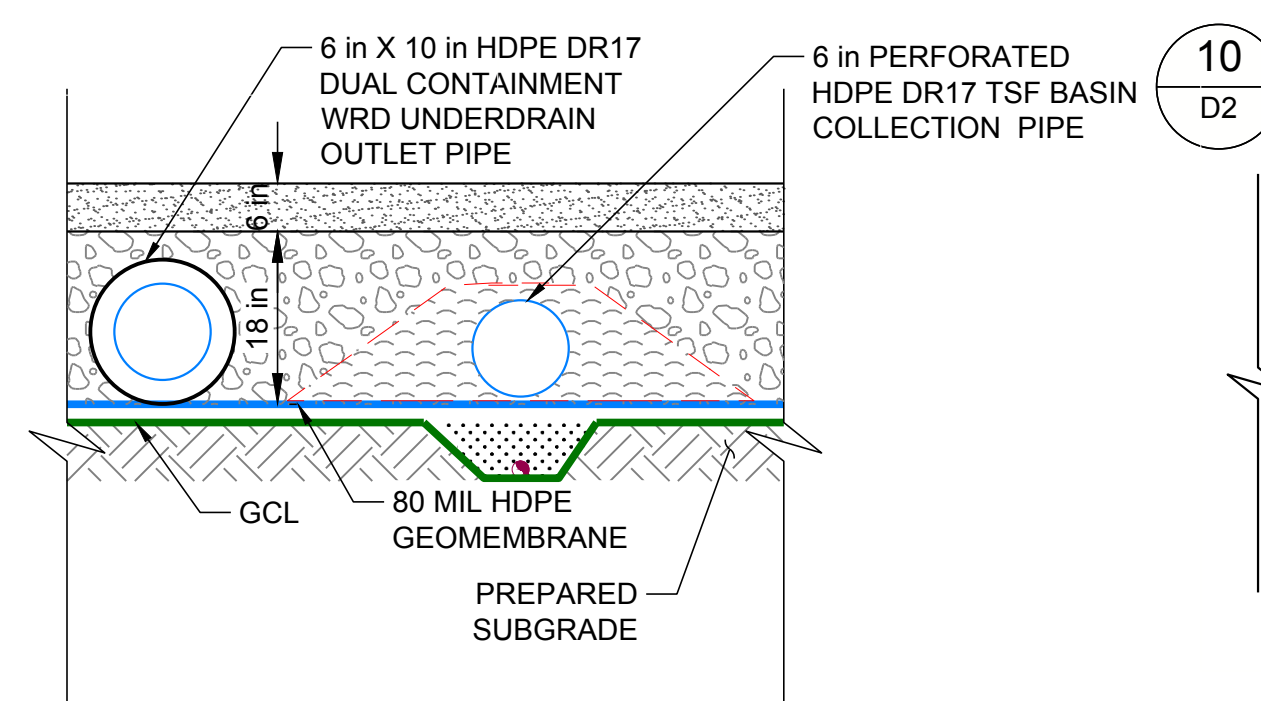


NTS **47** WRD PIPE BOOT DETAIL

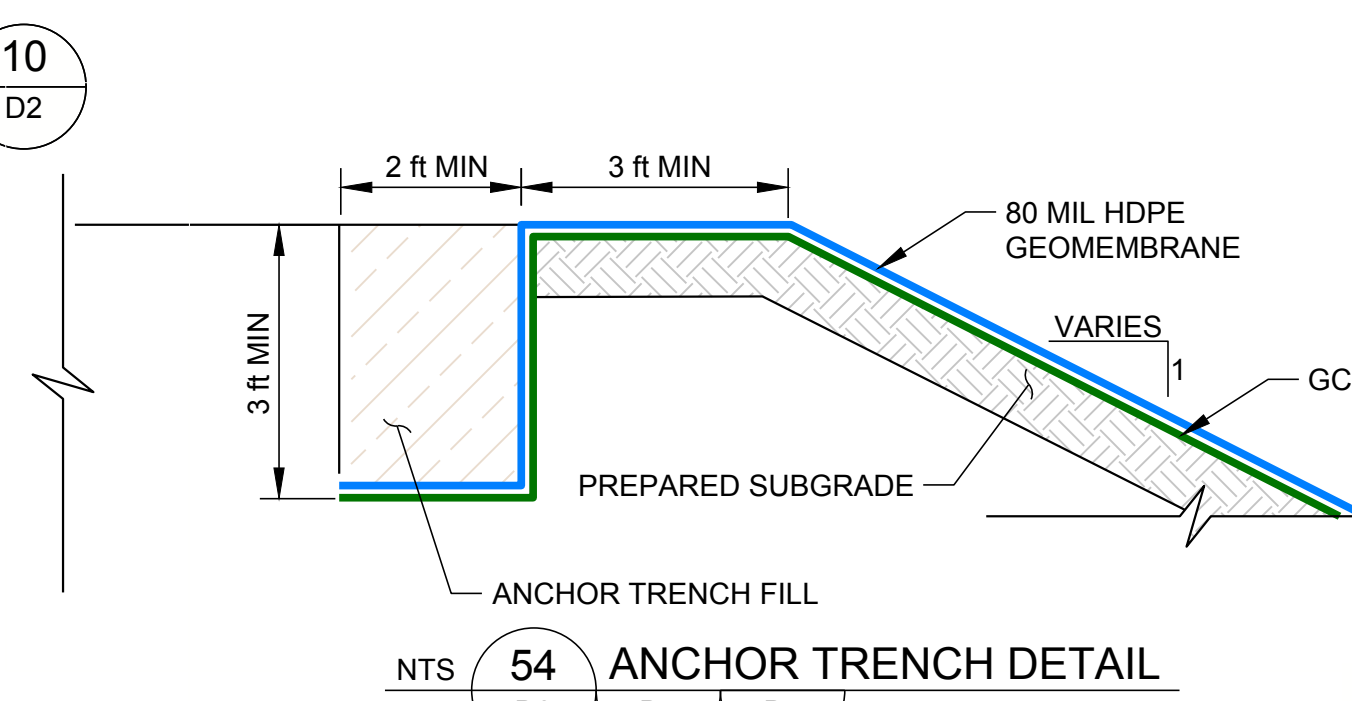


NTS 51 WASTE ROCK DUMP LEAK DETECTION SUMP SECTION

NTS 50 WASTE ROCK DUMP LEAK DETECTION SUMP DETAIL



NTS 53 STAGE 2 AND 3 WRD DUAL CONTAINMENT
UNDERDRAIN OUTLET PIPE DETAIL



NTS 54 ANCHOR TRENCH DETAIL

1. MINIMUM 4 FT WASTE ROCK OPERATIONAL COVER SHALL REMAIN AT ALL TIMES DURING OPERATION TO BE REMOVED DURING RECLAMATION OF WASTE ROCK DUMP.
2. OPERATIONAL COVER SHALL BE WASTE ROCK WITH LESS THAN 3 in MAX PARTICLE SIZE.
3. OPERATIONAL COVER ON PAD SIDE SLOPES SHALL BE DOZER PLACED FROM TOE UP TO DESIGN ELEVATION.
4. IN STAGES 2 AND 3 BASINS PRIOR TO STAGE.

 GCL
 80 MIL HDPE GEOMEMBRANE

ISSUED FOR CONSTRUCTION

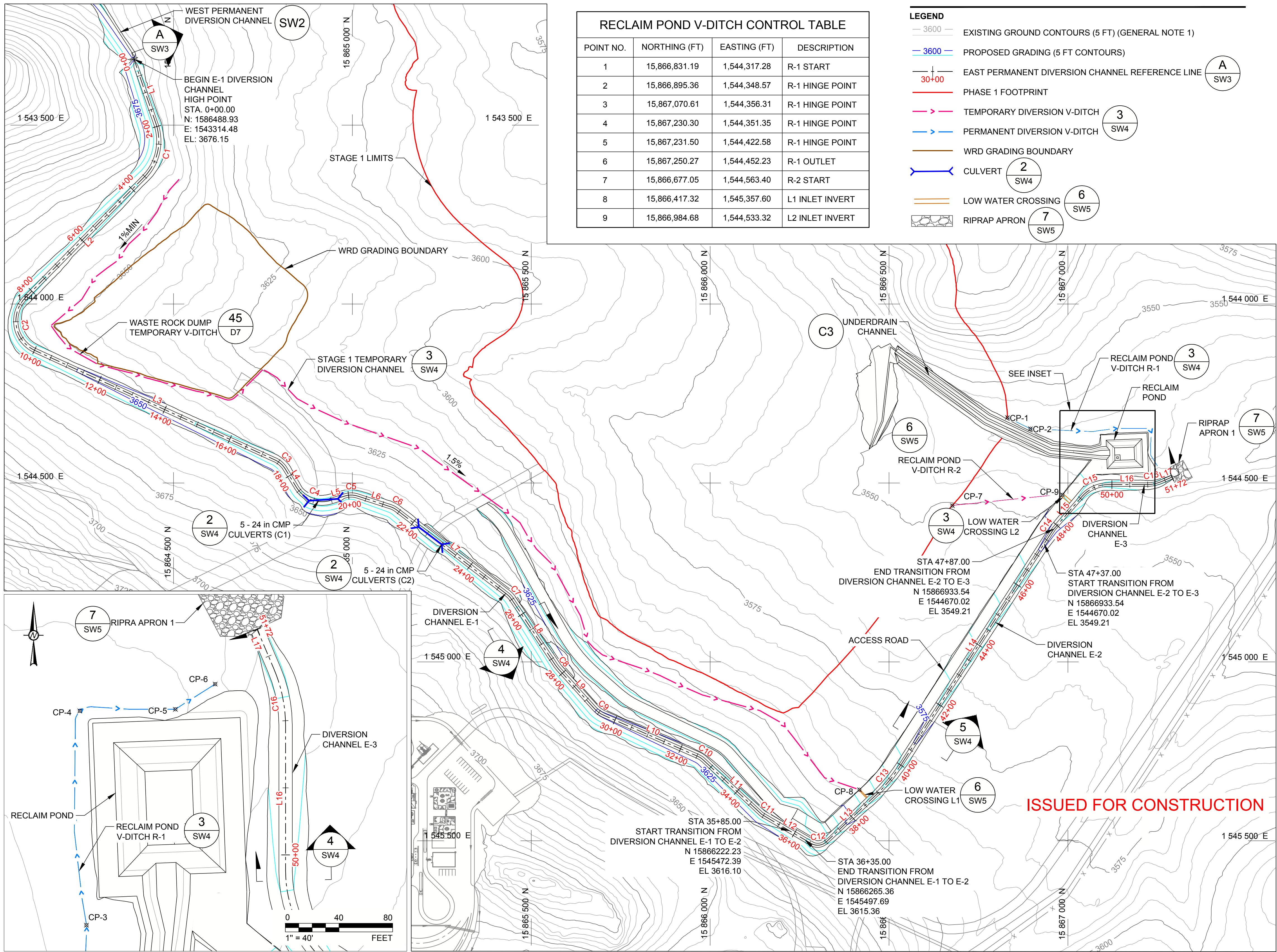


DRAWING

D8

DO

Path: \\verod\delm\DAI\1663241\Grassy Mountain\PF5000\Drawings\PRODUCTION\CONSOLIDATED PERMIT - File Name: 1663241_SW_001_STORMWATER PLAN.dwg | Last Edited By: mdelingrader Date: 2019-11-06 Time: 3:59:00 PM | Printed By: jefrice Date: 2019-11-06 Time: 4:37:57 PM

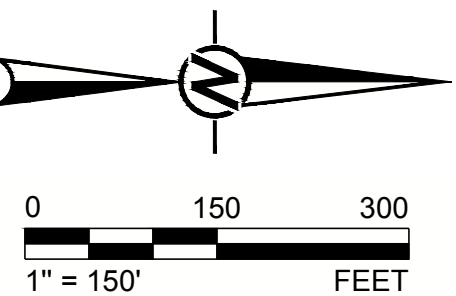


RECLAIM POND V-DITCH CONTROL TABLE			
POINT NO.	NORTHING (FT)	EASTING (FT)	DESCRIPTION
1	15,866,831.19	1,544,317.28	R-1 START
2	15,866,895.36	1,544,348.57	R-1 HINGE POINT
3	15,867,070.61	1,544,356.31	R-1 HINGE POINT
4	15,867,230.30	1,544,351.35	R-1 HINGE POINT
5	15,867,231.50	1,544,422.58	R-1 HINGE POINT
6	15,867,250.27	1,544,452.23	R-1 OUTLET
7	15,866,677.05	1,544,563.40	R-2 START
8	15,866,417.32	1,545,357.60	L1 INLET INVERT
9	15,866,984.68	1,544,533.32	L2 INLET INVERT

LEGEND	
	EXISTING GROUND CONTOURS (5 FT) (GENERAL NOTE 1)
	PROPOSED GRADING (5 FT CONTOURS)
	EAST PERMANENT DIVERSION CHANNEL REFERENCE LINE
	PHASE 1 FOOTPRINT
	TEMPORARY DIVERSION V-DITCH
	PERMANENT DIVERSION V-DITCH
	WRD GRADING BOUNDARY
	CULVERT
	LOW WATER CROSSING
	RIPRAP APRON

EAST DIVERSION CHANNEL CURVE TABLE				
CURVE #	RADIUS (FT)	LENGTH (FT)	START POINT (N, E)	END POINT (N, E)
C1	145.24	160.68	(15,864,451.19, 1,543,496.75)	(15,864,417.28, 1,543,645.55)
C2	91.10	174.93	(15,864,085.47, 1,543,982.86)	(15,864,112.62, 1,544,129.63)
C3	64.03	38.13	(15,864,784.11, 1,544,435.78)	(15,864,812.22, 1,544,460.71)
C4	83.84	111.62	(15,864,843.62, 1,544,512.22)	(15,864,940.63, 1,544,548.47)
C5	62.33	38.77	(15,864,977.42, 1,544,536.76)	(15,865,015.57, 1,544,536.87)
C6	53.87	18.26	(15,865,106.98, 1,544,566.55)	(15,865,123.08, 1,544,575.00)
C7	60.58	19.99	(15,865,431.69, 1,544,811.02)	(15,865,445.29, 1,544,825.54)
C8	107.28	15.89	(15,865,567.11, 1,545,008.30)	(15,865,576.87, 1,545,020.82)
C9	81.80	34.60	(15,865,675.43, 1,545,129.63)	(15,865,703.32, 1,545,149.67)
C10	57.67	19.54	(15,865,965.10, 1,545,263.98)	(15,865,981.36, 1,545,274.65)
C11	34.36	7.56	(15,866,141.70, 1,545,424.19)	(15,866,147.75, 1,545,428.70)
C12	35.76	46.01	(15,866,282.37, 1,545,507.67)	(15,866,325.00, 1,545,502.84)
C13	474.84	113.90	(15,866,460.77, 1,545,374.80)	(15,866,533.52, 1,545,287.52)
C14	55.01	7.57	(15,866,956.03, 1,544,635.30)	(15,866,960.57, 1,544,629.25)
C15	94.55	81.15	(15,867,039.84, 1,544,537.47)	(15,867,111.39, 1,544,504.72)
C16	108.93	43.77	(15,867,219.05, 1,544,504.71)	(15,867,261.65, 1,544,496.03)

EAST DIVERSION CHANNEL LINE TABLE				
LINE #	LENGTH (FT)	BEARING	START POINT (N, E)	END POINT (N, E)
L1	192.61	N71° 08' 28.55"E	(15,864,388.93, 1,543,314.48)	(15,864,451.19, 1,543,496.75)
L2	473.16	S45° 28' 13.55"E	(15,864,417.28, 1,543,645.55)	(15,864,085.47, 1,543,982.86)
L3	737.99	N24° 30' 33.79"E	(15,864,112.62, 1,544,129.63)	(15,864,784.11, 1,544,435.78)
L4	60.33	N58° 37' 48.37"E	(15,864,812.22, 1,544,460.71)	(15,864,843.62, 1,544,512.22)
L5	38.61	N17° 39' 09.23"W	(15,864,940.63, 1,544,548.47)	(15,864,977.42, 1,544,536.76)
L6	96.11	N17° 59' 14.29"E	(15,865,015.57, 1,544,536.87)	(15,865,106.98, 1,544,566.55)
L7	388.52	N37° 24' 31.45"E	(15,865,123.08, 1,544,575.00)	(15,865,431.69, 1,544,811.02)
L8	219.64	N56° 18' 51.85"E	(15,865,445.29, 1,544,825.54)	(15,865,567.11, 1,545,008.30)
L9	146.81	N47° 49' 35.02"E	(15,865,576.87, 1,545,020.82)	(15,865,675.43, 1,545,129.63)
L10	285.65	N23° 35' 19.29"E	(15,865,703.32, 1,545,149.67)	(15,865,965.10, 1,545,263.98)
L11	219.25	N43° 00' 09.68"E	(15,865,981.36, 1,545,274.65)	(15,866,141.70, 1,545,424.19)
L12	156.08	N30° 23' 46.91"E	(15,866,147.75, 1,545,428.70)	(15,866,282.37, 1,545,507.67)
L13	186.62	N43° 19' 15.91"W	(15,866,325.00, 1,545,502.84)	(15,866,460.77, 1,545,374.80)
L14	777.11	N57° 03' 52.62"W	(15,866,533.52, 1,545,287.52)	(15,866,956.03, 1,544,635.30)
L15	121.28	N49° 10' 51.37"W	(15,866,960.57, 1,544,629.25)	(15,867,039.84, 1,544,537.47)
L16	107.66	N0° 00' 23.68"W	(15,867,111.39, 1,544,504.72)	(15,867,219.05, 1,544,504.71)
L17	31.85	N23° 01' 49.58"W	(15,867,261.65, 1,544,496.03)	(15,867,290.97, 1,544,483.57)



0	2019-11-06	ISSUED FOR CONSTRUCTION	MDB	JRP	CJM	RAB
REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED

CLIENT
CALICO RESOURCES USA CORP.
GRASSY MOUNTAIN PROJECT
MALHEUR COUNTY, OREGON

CALICO
RESOURCES

CONSULTANT
GOLDER

GOLDER ASSOCIATES INC.
595 DOUBLE EAGLE COURT, SUITE 1000
RENO, NV 89521
USA
[+1] (775) 828-9604
www.golder.com

PROJECT
GRASSY MOUNTAIN
TAILINGS STORAGE FACILITY AND WASTE ROCK DUMP
DETAILED DESIGN

TITLE
EAST PERMANENT DIVERSION CHANNEL ALIGNMENT

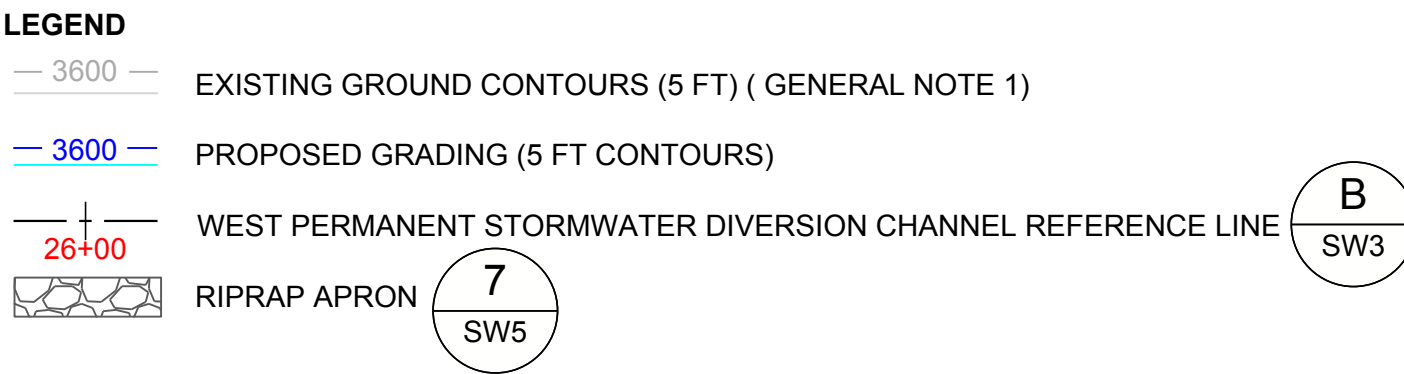
PROJECT NO.
1663241

REV.
0

33 of 42

DRAWING
SW1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI D



WEST DIVERSION CHANNEL CURVE TABLE				
CURVE #	RADIUS (FT)	LENGTH (FT)	START POINT (N, E)	END POINT (N, E)
C1	118.63	113.55	(15,864,034.89, 1,542,206.72)	(15,863,995.76, 1,542,308.74)
C2	54.30	26.90	(15,863,920.73, 1,542,375.36)	(15,863,897.10, 1,542,387.61)
C3	113.80	319.34	(15,863,334.74, 1,542,532.66)	(15,863,360.81, 1,542,755.54)
C6	66.20	107.07	(15,863,371.06, 1,542,756.07)	(15,863,433.55, 1,542,828.65)
C7	66.80	109.44	(15,863,432.25, 1,542,841.86)	(15,863,496.71, 1,542,915.16)
C8	367.18	96.75	(15,863,564.34, 1,542,917.21)	(15,863,659.55, 1,542,932.78)
C9	44.39	32.21	(15,863,806.18, 1,542,977.15)	(15,863,837.61, 1,542,974.98)
C10	75.00	63.66	(15,863,850.39, 1,542,969.09)	(15,863,912.16, 1,542,968.65)
C11	199.67	116.22	(15,864,221.58, 1,543,105.82)	(15,864,308.60, 1,543,180.36)

LINE #	LENGTH (FT)	BEARING	START POINT (N, E)	END POINT (N, E)
L1	84.28	N83° 33' 26.52"E	(15,864,025.43, 1,542,122.97)	(15,864,034.89, 1,542,206.72)
L2	100.34	S41° 35' 54.21"E	(15,863,995.76, 1,542,308.74)	(15,863,920.73, 1,542,375.36)
L7	13.28	S84° 23' 26.76"E	(15,863,433.55, 1,542,828.65)	(15,863,432.25, 1,542,841.86)
L8	67.66	N1° 44' 16.82"E	(15,863,496.71, 1,542,915.16)	(15,863,564.34, 1,542,917.21)
L9	153.20	N16° 50' 07.00"E	(15,863,659.55, 1,542,932.78)	(15,863,806.18, 1,542,977.15)
L10	14.07	N24° 43' 51.20"W	(15,863,837.61, 1,542,974.98)	(15,863,850.39, 1,542,969.09)
L11	338.46	N23° 54' 30.19"E	(15,863,912.16, 1,542,968.65)	(15,864,221.58, 1,543,105.82)



CALICO
RESOURCES

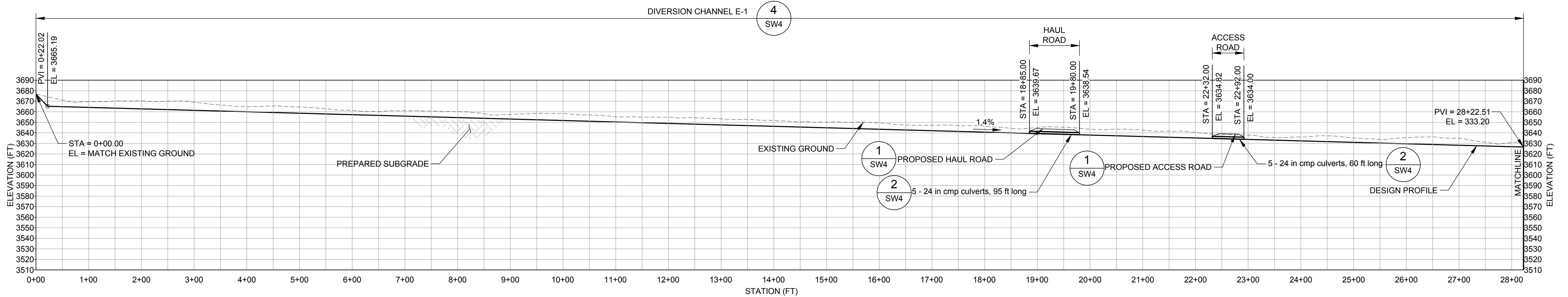


GOLDER

PROJECT NO.	REV.	34 of 42	DRAWING
1663241	0		SW2

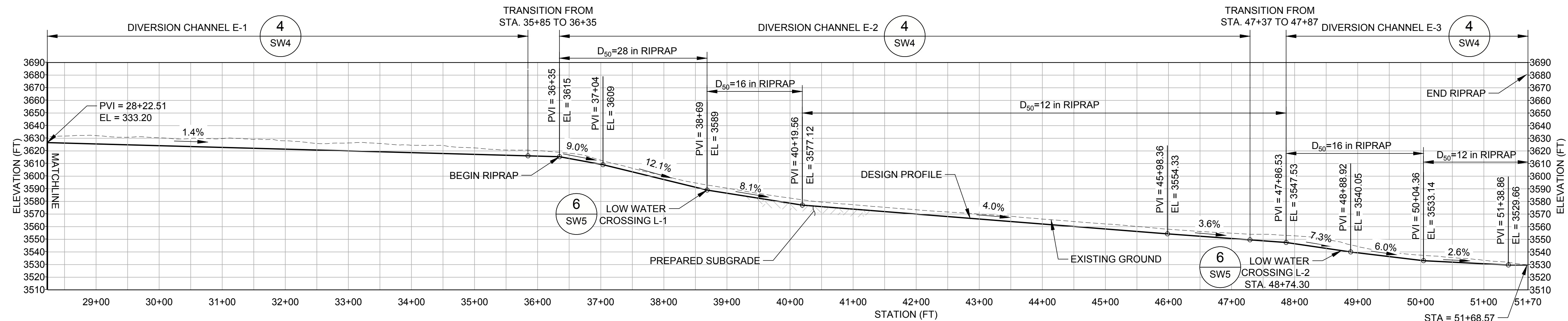
0	2019-11-06	ISSUED FOR CONSTRUCTION	MDB	JRP	CJM	RAB
REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED

Path: \\verod\del\MDA\166324\Grassy Mountain\PF\600_Drawing\PRODUCTION\CONSOLIDATED PERMIT - File Name: 166324_SW_002_STORMWATER PROFILES.dwg | Last Edited By: jephine Date: 2019-11-06 Time: 3:56:09 PM | Printed By: jephine Date: 2019-11-06 Time: 4:28:51 PM



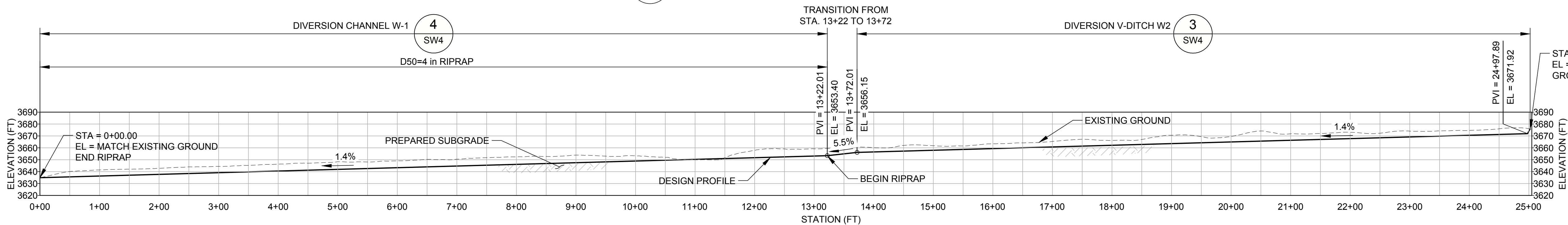
HORIZ. SCALE: 1"=100'
VERT. SCALE: 1"=50'

A EAST PERMANENT DIVERSION CHANNEL PROFILE
SW1



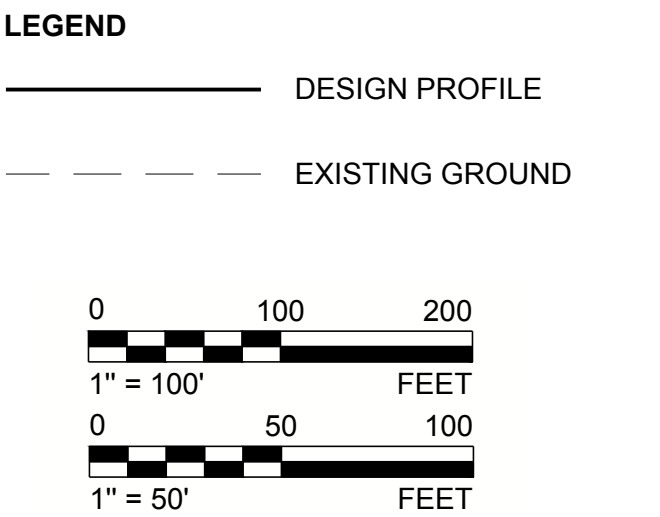
HORIZ. SCALE: 1"=100'
VERT. SCALE: 1"=50'

A EAST PERMANENT DIVERSION CHANNEL PROFILE
SW1



HORIZ. SCALE: 1"=100'
VERT. SCALE: 1"=50'

B WEST PERMANENT DIVERSION CHANNEL PROFILE
SW2



ISSUED FOR CONSTRUCTION

0 2019-11-06 ISSUED FOR CONSTRUCTION

REV. YYYY-MM-DD DESCRIPTION

MDB JRP CJM RAB

DESIGNED PREPARED REVIEWED APPROVED

CLIENT
CALICO RESOURCES USA CORP.
GRASSY MOUNTAIN PROJECT
MALHEUR COUNTY, OREGON

CONSULTANT



GOLDER ASSOCIATES INC.
595 DOUBLE EAGLE COURT, SUITE 1000
RENO, NV 89521
USA
[+1] (775) 828-9604
www.golder.com

PROJECT
GRASSY MOUNTAIN
TAILINGS STORAGE FACILITY AND WASTE ROCK DUMP
DETAILED DESIGN

TITLE
STORMWATER DIVERSION CHANNEL PROFILES

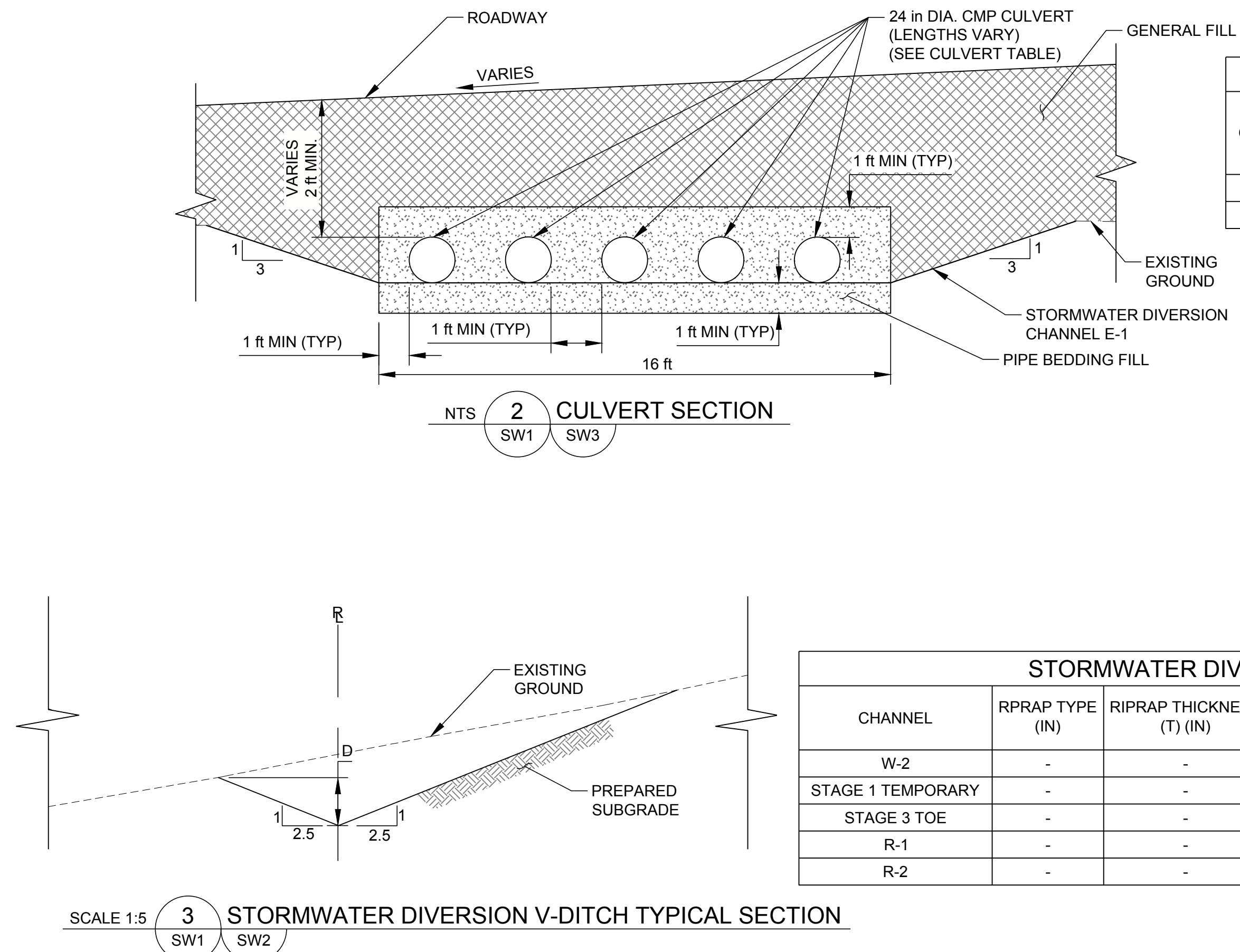
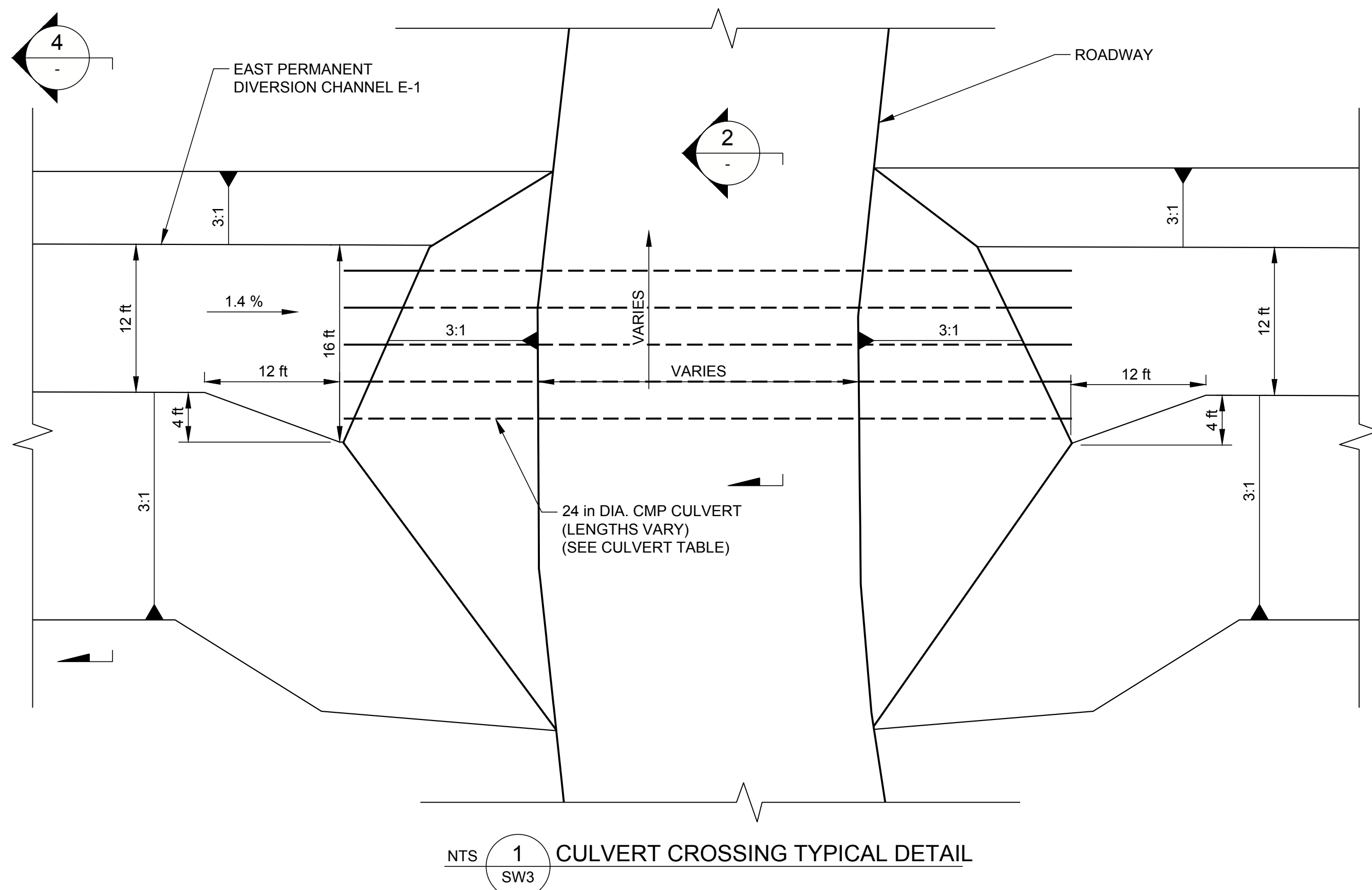
PROJECT NO.
1663241

REV. 0 35 of 42

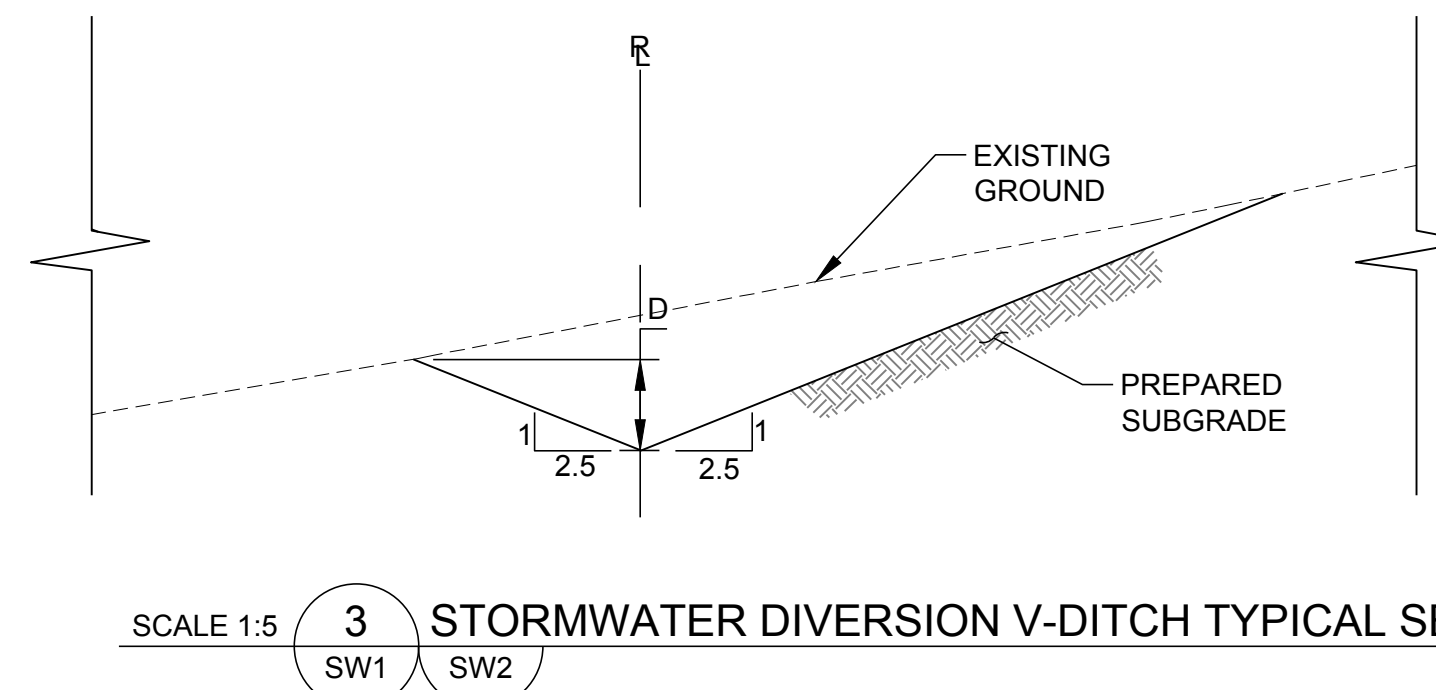
DRAWING
SW3



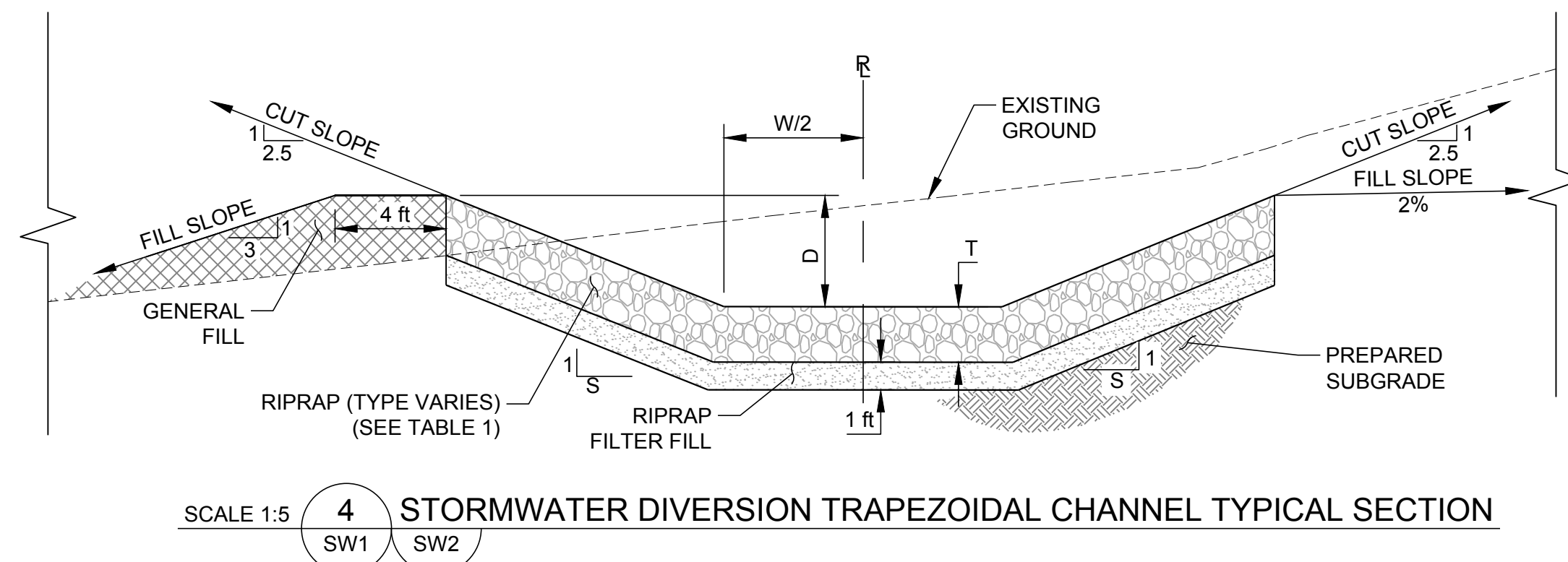
1 in IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI D



CULVERT TABLE				
CULVERT	BARREL DIAMETER (IN)	BARREL LENGTH (FT)	# BARRELS	CULVERT GRADE
C1	24	95	5	1.4 %
C2	24	60	5	1.4 %



STORMWATER DIVERSION V-DITCH TABLE					
CHANNEL	RPRAP TYPE (IN)	RIPRAP THICKNESS (T) (IN)	CHANNEL DEPTH (D) (FT)	WEST PERMANENT DIVERSION CHANNEL STATIONING	DETAIL
W-2	-	-	2.25	13+72 TO 25+04	3/SW4
STAGE 1 TEMPORARY	-	-	1.75	-	3/SW4
STAGE 3 TOE	-	-	1.75	-	3/SW4
R-1	-	-	1.50	-	3/SW4
R-2	-	-	1.75	-	3/SW4

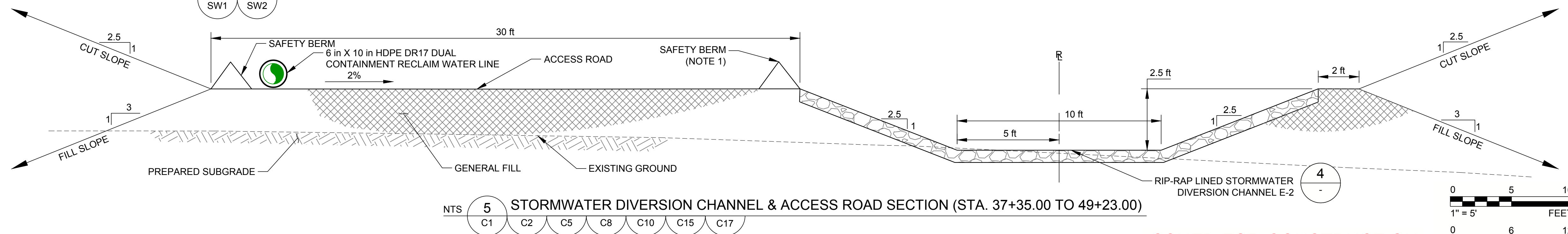


STORMWATER DIVERSION TRAPAZOIDAL CHANNEL TABLE								
CHANNEL	SIDE SLOPE (S:1)	RIPRAP TYPE (IN)	RIPRAP THICKNESS (IN)	BOTTOM WIDTH (W) (FT)	CHANNEL DEPTH (D) (FT)	EAST PERMANENT DIVERSOIN CHANNEL STATIONING	WEST PERMANENT DIVERSION CHANNEL STATIONING	DETAILS
E-1	3.00	-	-	12.00	2.25	0+00 TO 35+85	-	4/SW4
E-1		-	-	16.00	2.25			
E-2	2.50	SEE CHANNEL RIPRAP TABLE		10.00	3.00	36+35 TO 47+37	-	4/SW4
E-3	2.50	SEE CHANNEL RIPRAP TABLE		10.00	3.00	47+87 TO 51+69	-	4/SW4
W-1	2.50	D ₅₀ =4	6	10.00	4.25	-	0+00 TO 13+22	4/SW4

SLOPE RANGE	RIPRAP TYPE (IN)	RIPRAP THICKNESS (T) (IN)
2-6%	D ₅₀ = 12	18
6-8.5%	D ₅₀ = 16	24
>8.5%	D ₅₀ = 28	40

NOTE

1. CUT OPENINGS IN SAFETY BERM AS NEEDED TO PROMOTE ACCESS ROAD DRAINAGE INTO IMPOUNDMENT.



ISSUED FOR CONSTRUCTION

CLIENT
CALICO RESOURCES USA CORP.
GRASSY MOUNTAIN PROJECT
MALHEUR COUNTY, OREGON

CONSULTANT



GOLDER ASSOCIATES INC.
595 DOUBLE EAGLE COURT, SUITE 1000
RENO, NV 89521
USA
[+1] (775) 828-9604
www.golder.com



PROJECT
GRASSY MOUNTAIN
TAILINGS STORAGE FACILITY AND WASTE ROCK DUMP
DETAILED DESIGN

TITLE
STORMWATER DIVERSION DETAILS (1 OF 2)

0	2019-11-06	ISSUED FOR CONSTRUCTION
---	------------	-------------------------

REV.	YYYY-MM-DD	DESCRIPTION
------	------------	-------------

MDB	JRP	CJM	RAB
-----	-----	-----	-----

DESIGNED PREPARED REVIEWED APPROVED

PROJECT NO.
1663241

REV. 36 of 42
0

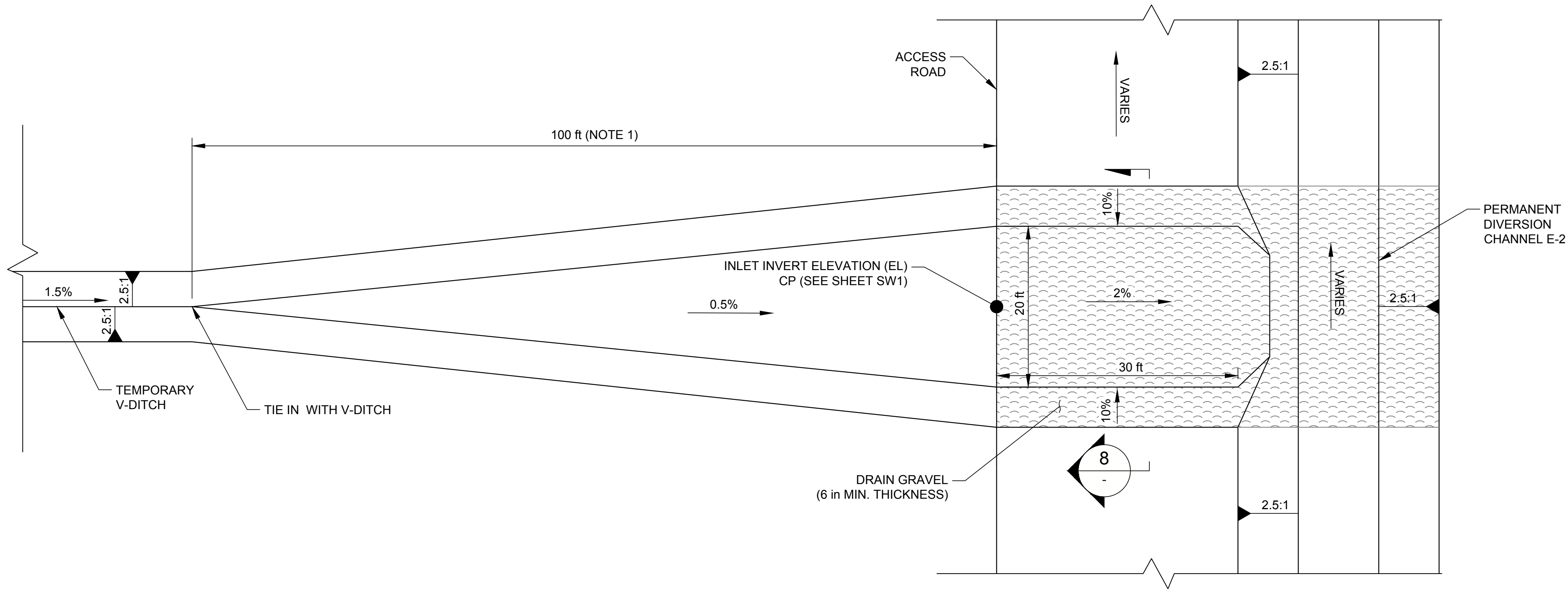
DRAWING
SW4

Path: \\encl\data\MDA\1663241\Grassy Mountain PFS600 Drawings\PRODUCTION\CONSOLIDATED PERMIT | File Name: 1663241_SW_003_STORMWATER PROFILES.dwg | Last Edited By: jprice Date: 2019-11-06 Time: 3:55:23 PM | Printed By: jprice Date: 2019-11-06 Time: 4:39:18 PM

1 in

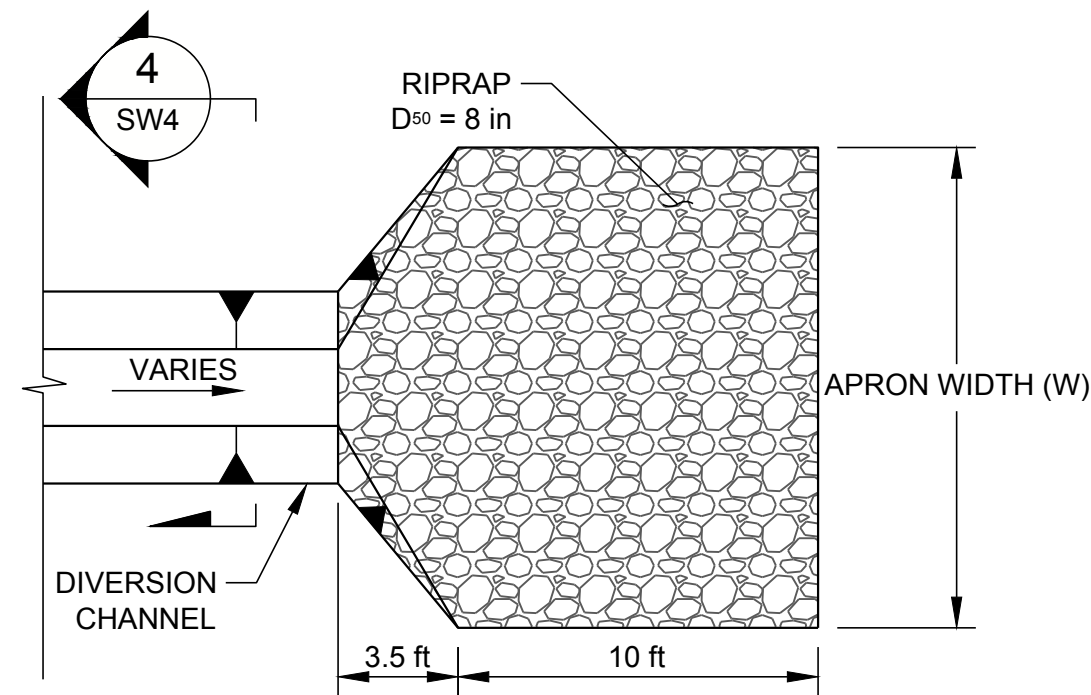
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

Path: \\verod\delm\DAI\665241_Grassy Mountain PFS\600_Drawing\PRODUCTION\CONSOLIDATED PERMIT | File Name: 1665241_SW_003_STORMWATER PROFILES.dwg | Last Edited By: jparice Date: 2019-11-06 Time: 3:55:23 PM | Printed By: jparice Date: 2019-11-06 Time: 4:39:28 PM



SCALE 1" = 10' 6 LOW WATER CROSSING TYPICAL DETAIL
SW1

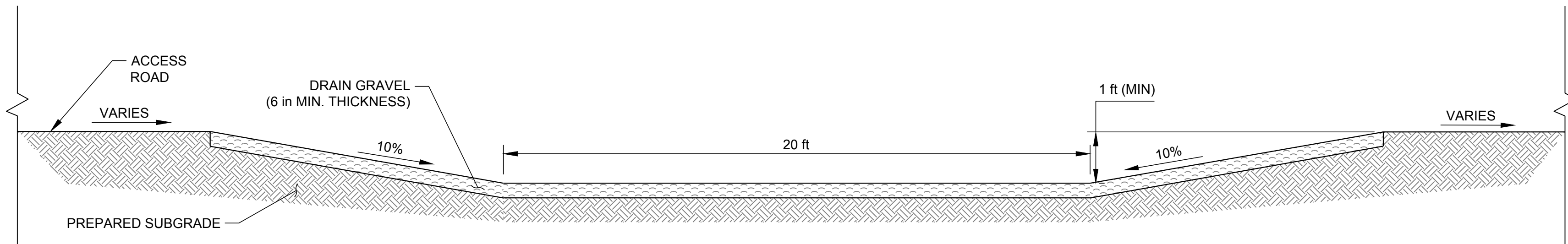
LOW WATER CROSSING TABLE			
LOW WATER CROSSING	UPSTREAM V-DITCH	DOWNSTREAM DIVERSION CHANNEL	INLET INVERT ELEVATION (EL) (FT)
L1	STAGE 1 TEMPORARY DIVERSION CHANNEL	DIVERSION CHANNEL E-2	3691.67
L2	RECLAIM POND V-DITCH R-2	DIVERSION CHANNEL E-3	3544.07



NTS 7 RIPRAP APRON DETAIL
SW1

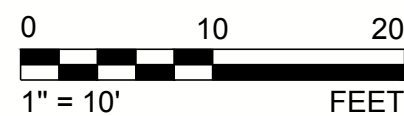
RIPRAP APRON TABLE		
APRON #	APRON WIDTH (W) (FT)	RIPRAP THICKNESS (IN)
1	30	12
2	30	12
3	40	12

NOTE
1. TRANSITION UNIFORMLY BETWEEN 2.5H:1V CHANNEL AND 5H:1 CROSSING.



NTS 8 LOW WATER CROSSIN TYPICAL SECTION

ISSUED FOR CONSTRUCTION



CLIENT
CALICO RESOURCES USA CORP.
GRASSY MOUNTAIN PROJECT
MALHEUR COUNTY, OREGON



CONSULTANT

GOLDER ASSOCIATES INC.
595 DOUBLE EAGLE COURT, SUITE 1000
RENO, NV 89521
USA
[+1] (775) 828-9604
www.golder.com



PROJECT
GRASSY MOUNTAIN
TAILINGS STORAGE FACILITY AND WASTE ROCK DUMP
DETAILED DESIGN

TITLE
STORMWATER DIVERSION DETAILS (2 OF 2)

PROJECT NO.
1663241

REV. 0 37 of 42

DRAWING
SW5

0 2019-11-06 ISSUED FOR CONSTRUCTION

MDB JRP CJM RAB

DESIGNED PREPARED REVIEWED APPROVED

Path: \\verod\delm\DAI\166241_Grassy Mountain PFS\000_Drawing\PRODUCTION\CONSOLIDATED PERMIT - File Name: 166241_L_001_Geotechnical Instrumentation Layout.dwg | Last Edited By: jgracia Date: 2019-11-06 Time: 3:53:33 PM | Printed By: jgracia Date: 2019-11-06 Time: 4:40:15 PM

INCLINOMETERS CONTROL POINT TABLE				
INSTRUMENT	STAGE	NORTHING (FT)	EASTING (FT)	ELEVATION (FT)
INC1-1	1	15,866,549	1,544,572	3,596.7
INC1-2	1	15,866,690	1,544,315	3,597.5
INC2-1	2	15,866,612	1,544,606	3,611.0
INC2-2	2	15,866,876	1,544,416	3,554.7
INC2-3	2	15,866,070	1,543,289	3,611.1
INC3-1	3	15,866,662	1,544,632	3,623.9
INC3-2	3	15,866,965	1,544,444	3,553.5
INC3-3	3	15,866,142	1,543,208	3,604.5

PIEZOMETER CONTROL POINT TABLE				
INSTRUMENT	STAGE	NORTHING (FT)	EASTING (FT)	ELEVATION (FT)
PZ-TF-1A	1	15,866,622	1,544,584	3,545.0
PZ-TF-1B	1	15,866,622	1,544,584	3,521.0
PZ-TF-1C	1	15,866,622	1,544,584	3,505.0
PZ-TF-2A	1	15,866,672	1,544,613	3,545.0
PZ-TF-2B	1	15,866,672	1,544,613	3,521.0
PZ-TF-2C	1	15,866,672	1,544,613	3,505.0
PZ-TF-3A	2	15,866,766	1,544,680	3,545.0
PZ-TF-3B	2	15,866,766	1,544,680	3,521.0
PZ-TF-3C	2	15,866,766	1,544,680	3,505.0
PZ-TF-4A	1	15,866,678	1,544,336	3,524.0
PZ-TF-4B	1	15,866,678	1,544,336	3,500.0
PZ-TF-4C	1	15,866,678	1,544,336	3,484.0
PZ-TF-5A	1	15,866,798	1,544,378	3,524.0
PZ-TF-5B	1	15,866,798	1,544,378	3,500.0
PZ-TF-5C	1	15,866,798	1,544,378	3,484.0
PZ-TF-6A	2	15,866,928	1,544,434	3,524.0

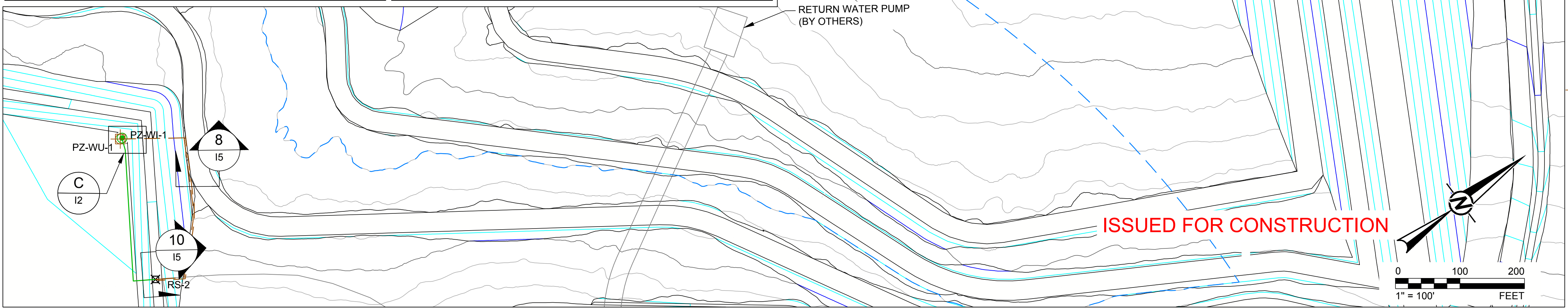
PIEZOMETER CONTROL POINT TABLE				
INSTRUMENT	STAGE	NORTHING (FT)	EASTING (FT)	ELEVATION (FT)
PZ-TF-6B	2	15,866,928	1,544,434	3,500.0
PZ-TF-6C	2	15,866,928	1,544,434	3,484.0
PZ-TF-7A	1	15,866,086	1,543,274	3,583.0
PZ-TF-7B	1	15,866,086	1,543,274	3,552.0
PZ-TF-7C	1	15,866,086	1,543,274	3,540.0
PZ-TF-8A	2	15,866,153	1,543,232	3,583.0
PZ-TF-8B	2	15,866,153	1,543,232	3,552.0
PZ-TF-8C	2	15,866,153	1,543,232	3,540.0
PZ-TI-1	1	15,866,515	1,544,130	3,544.9
PZ-TI-2	1	15,866,513	1,544,138	3,544.9
PZ-TI-3	1	15,865,808	1,543,530	3,563.8
PZ-TI-4	1	15,865,777	1,544,354	3,572.4
PZ-TU-1	1	15,866,511	1,544,127	3,545.0
PZ-TU-2	1	15,866,511	1,544,142	3,544.9
PZ-WI-1	1	15,864,769	1,543,979	3,624.3
PZ-WU-1	1	15,864,765	1,543,979	3,624.9

READOUT STATION CONTROL POINT TABLE				
READOUT STATION	NORTHING (FT)	EASTING (FT)	ELEVATION (FT)	STAGE
RS-1	15,867,069	1,544,436	3,536.8	1
RS-2	15,864,680	1,544,186	3,642.2	1
RS-3	15,867,104	1,544,439	3,536.7	1
RS-4	15,866,643	1,544,116	3,595.0	1
RS-5	15,866,237	1,543,296	3,601.8	1

SURVEY MONUMENT CONTROL POINT TABLE				
INSTRUMENT	STAGE	NORTHING (FT)	EASTING (FT)	ELEVATION (FT)
SM1-1	1	15,866,537	1,544,596	3,593.4
SM1-2	1	15,866,699	1,544,287	3,594.6
SM1-3	1	15,866,204	1,543,507	3,595.0
SM1-4	1	15,866,036	1,543,346	3,595.1
SM2-1	2	15,866,600	1,544,627	3,608.0
SM2-2	2	15,866,751	1,544,347	3,608.7
SM2-3	2	15,866,236	1,543,448	3,607.9
SM2-4	2	15,866,088	1,543,308	3,608.1
SM3-1	3	15,866,649	1,544,655	3,620.9
SM3-2	3	15,866,811	1,544,351	3,621.8
SM3-3	3	15,866,269	1,543,402	3,622.0
SM3-4	3	15,866,116	1,543,255	3,622.0

- NOTES**
- AT EACH DESIGNATED MONITORING POINT FOR PZ-TI, PZ-TU, PZ-WI, PZ-WU SERIES PLACE 2 PIEZOMETERS APPROXIMATELY 1 ft APART.
 - SEE DRAWING C15 FOR DETAILS AND UNDERDRAIN PIPING SYSTEM.
 - INCLINOMETER ELEVATIONS REPRESENT COLLAR ELEVATION 3 FT ABOVE PROPOSED GROUND.
 - READOUT STATION RS-4 AND REQUIRED CABLES TO BE RELOCATED TO NEW UPSTREAM DAM CREST WITH EACH DAM RAISE.
 - SURVEY MONUMENTS LOCATED ALONG DOWNSTREAM CREST OF EACH STAGE.

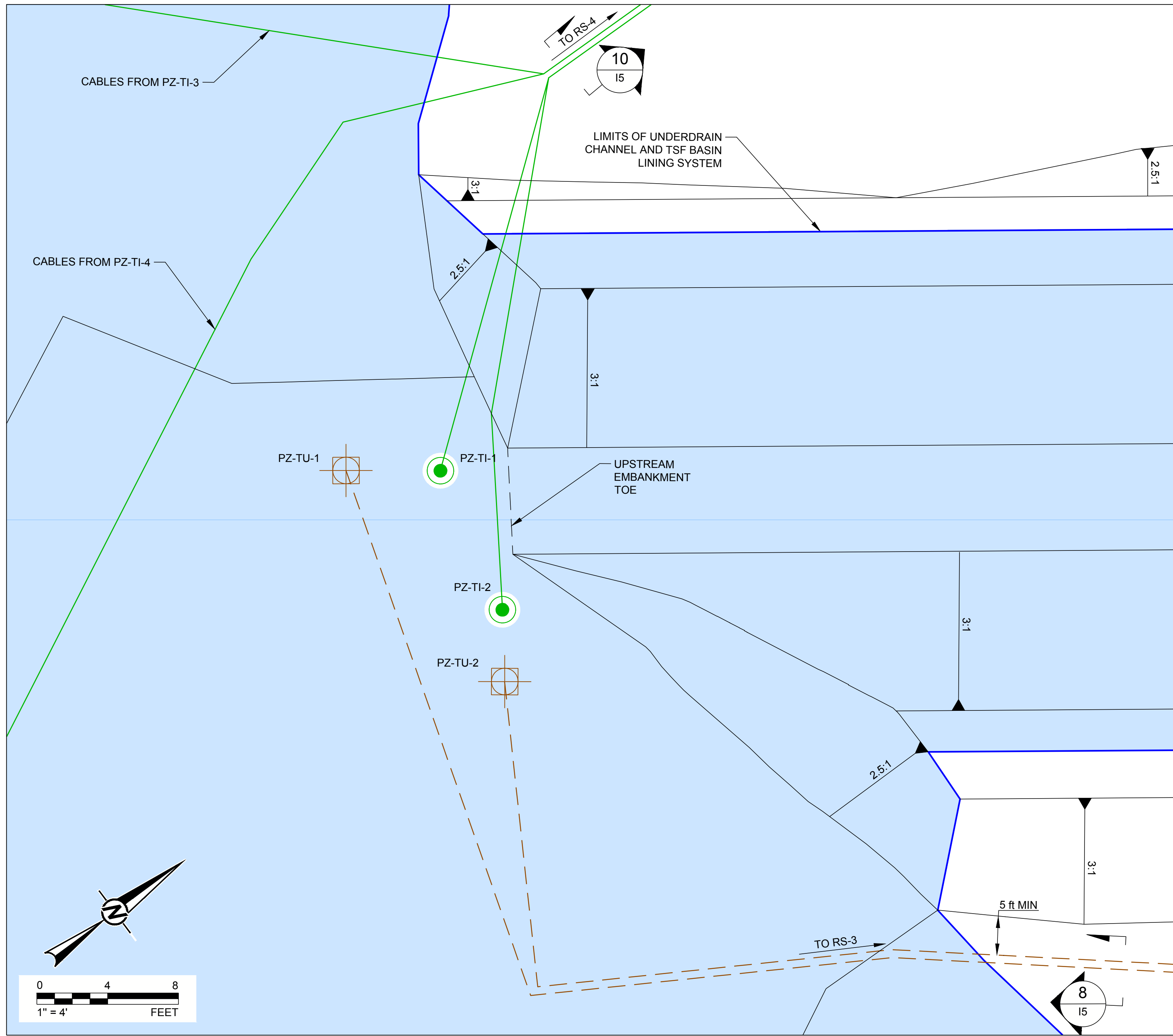
- LEGEND**
- 3600 — EXISTING GROUND (5 FT CONTOURS) (GENERAL NOTE 1)
 - 3600 — PROPOSED GRADING (5 FT CONTOURS)
 - RS-1 READOUT STATION
 - PZ-TF1 FOUNDATION PIEZOMETER
 - PZ-TU-1 UNDERLINER PIEZOMETER
 - PZ-TI-1 IMPOUNDMENT PIEZOMETER
 - INC1-1 INCLINOMETER (NOTE 3)
 - SM1-1 SURVEY MONUMENT
 - LIMITS OF SUPERNATANT POOL
 - CABLE ROUTES BELOW LINER
 - CABLE ROUTES ABOVE LINER



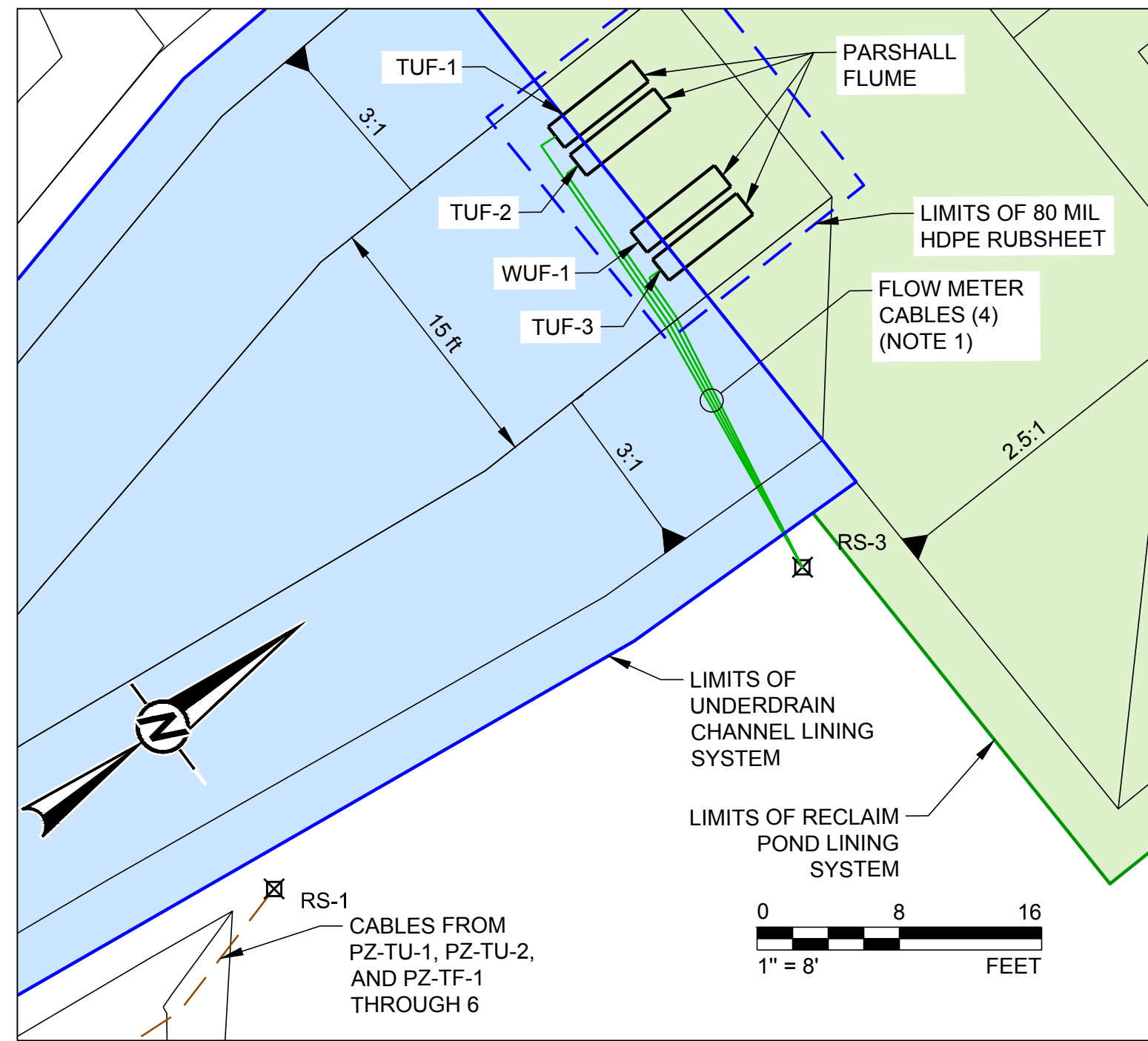
0	2019-11-06	ISSUED FOR CONSTRUCTION			MDB	JRP	CJM	RAB
REV.	YYYY-MM-DD	DESCRIPTION			DESIGNED	PREPARED	REVIEWED	APPROVED

GOLDER ASSOCIATES INC.
595 DOUBLE EAGLE COURT, SUITE 1000
RENO, NV 89521
USA
[+1] (775) 828-9604
www.golder.com

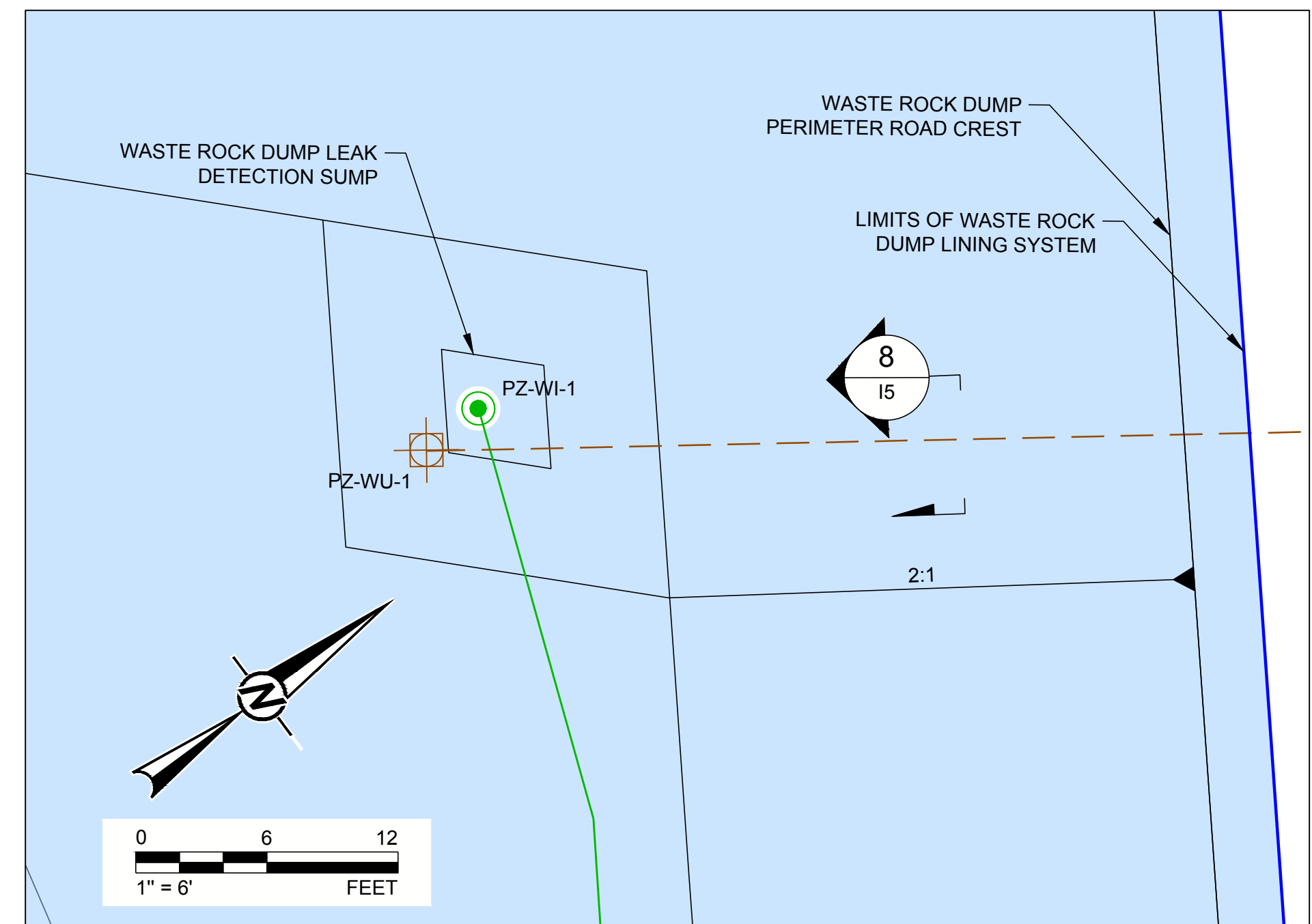
Path: \\verod\delm\DAI\1663241_Grassy Mountain PFS\600_Drawing\PRODUCTION\CONSOLIDATED PERMIT | File Name: 1663241_I_001_Geotechnical Instrumentation Layout.dwg | Last Edited By: jgpriza Date: 2019-11-06 Time: 3:53:33 PM | Printed By: jgpriza Date: 2019-11-06 Time: 4:40:53 PM



SCALE 1" = 4' **A** INSTRUMENTATION DETAIL (1 OF 3)



SCALE 1" = 8' **B** INSTRUMENTATION DETAIL (2 OF 3)



SCALE 1" = 6' **C** INSTRUMENTATION DETAIL (3 OF 3)

- LEGEND**
- RS-1 READOUT STATION
 - PZ-TU-1 UNDERLINER PIEZOMETER
 - PZ-TI-1 IMPOUNDMENT PIEZOMETER
 - CABLE ROUTES BELOW LINER (NOTE 2)
 - CABLE ROUTES ABOVE LINER
 - LIMITS OF UNDERDRAIN CHANNEL, WASTE ROCK DUMP, AND TSF BASIN LINING SYSTEM
 - LIMITS OF RECLAIM POND LINING SYSTEM
 - LIMITS OF 80 MIL HDPE RUBSHEET

ISSUED FOR CONSTRUCTION

- NOTES**
- SIGNAL CABLES FOR FLUME SONIC TRANSDUCERS TO ROUTE ALONG GEOMEMBRANE LINER TO RS-3.
 - DETAILED SURVEY OF AS INSTALLED CABLE TRENCHES TO BE PERFORMED PRIOR TO BACKFILLING.



CLIENT
CALICO RESOURCES USA CORP.
GRASSY MOUNTAIN PROJECT
MALHEUR COUNTY, OREGON



CONSULTANT

GOLDER ASSOCIATES INC.
595 DOUBLE EAGLE COURT, SUITE 1000
RENO, NV 89521
USA
[+1] (775) 828-9604
www.golder.com



PROJECT
GRASSY MOUNTAIN
TAILINGS STORAGE FACILITY AND WASTE ROCK DUMP
DETAILED DESIGN

TITLE
GEOTECHNICAL INSTRUMENTATION LAYOUT (2 OF 2)

PROJECT NO. 1663241
REV. 0
39 of 42
DRAWING 12

0 2019-11-06 ISSUED FOR CONSTRUCTION

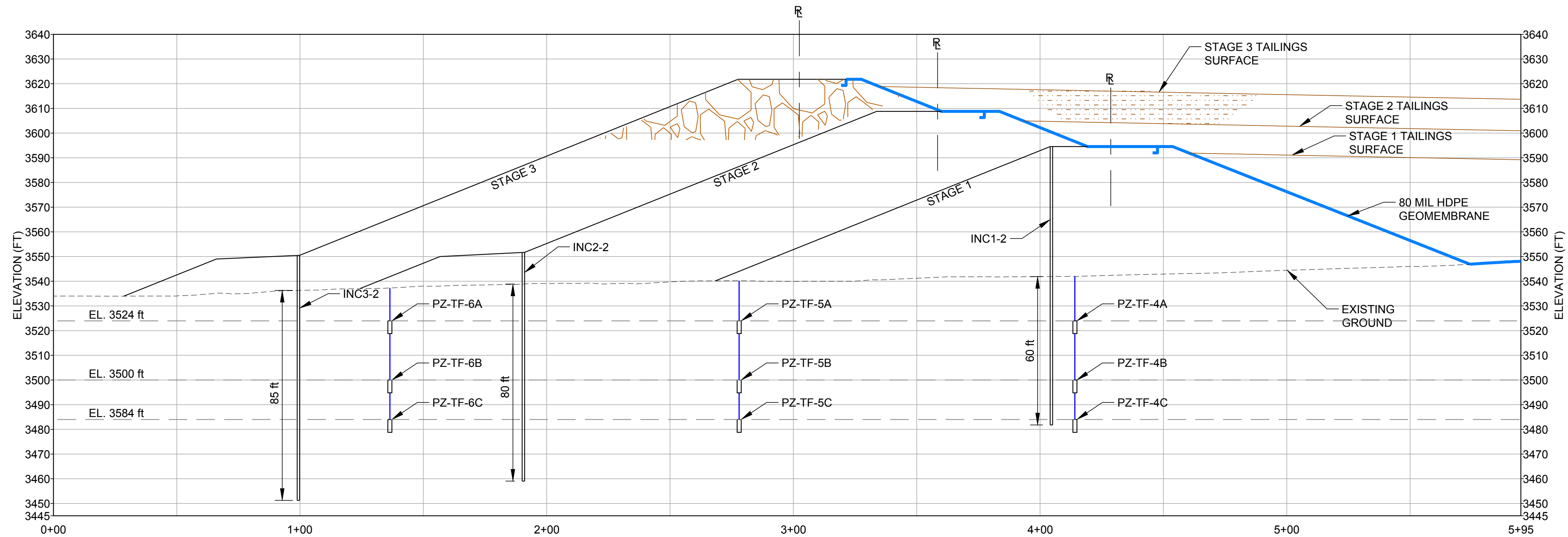
REV. YYYY-MM-DD DESCRIPTION

MDB JRP CJM RAB

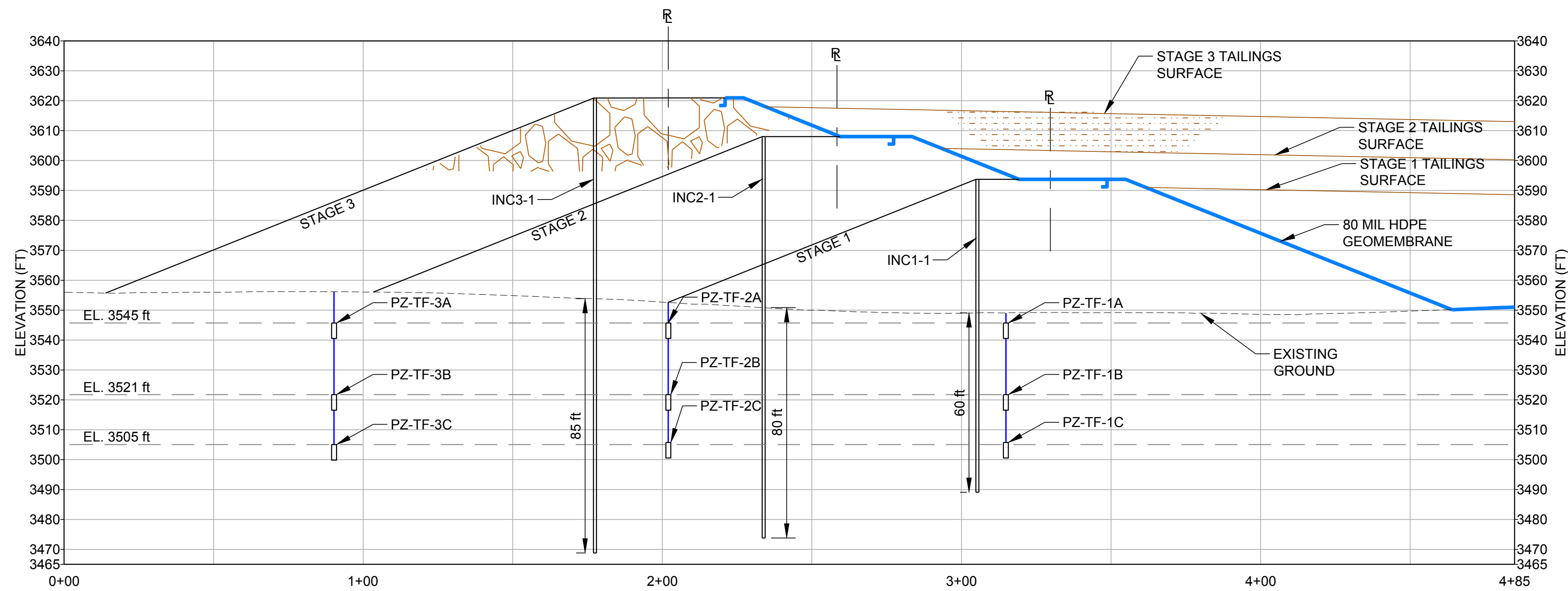
DESIGNED PREPARED REVIEWED APPROVED

1 in IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

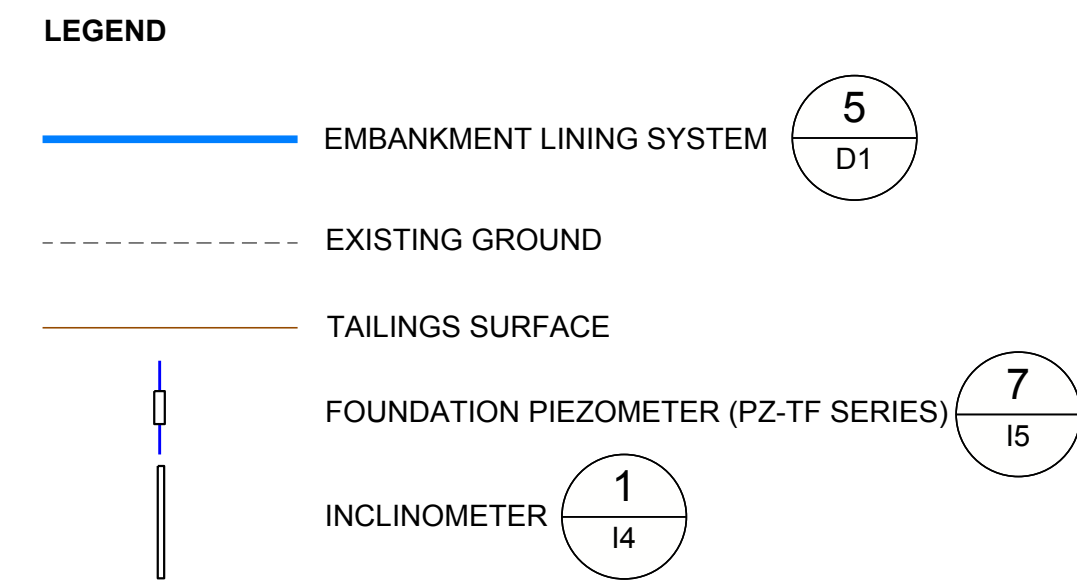
Path: \\verod\del\MDA\1663241_Grassy Mountain PFS\600_Drawing\PRODUCTION\CONSOLIDATED PERMIT\ File Name: 1663241_L_004_Geotechnical Instrumentation Sections.dwg | Last Edited By: jervice Date: 2019-11-08 Time: 3:52:23 PM | Printed By: jervice Date: 2019-11-08 Time: 4:41:45 PM



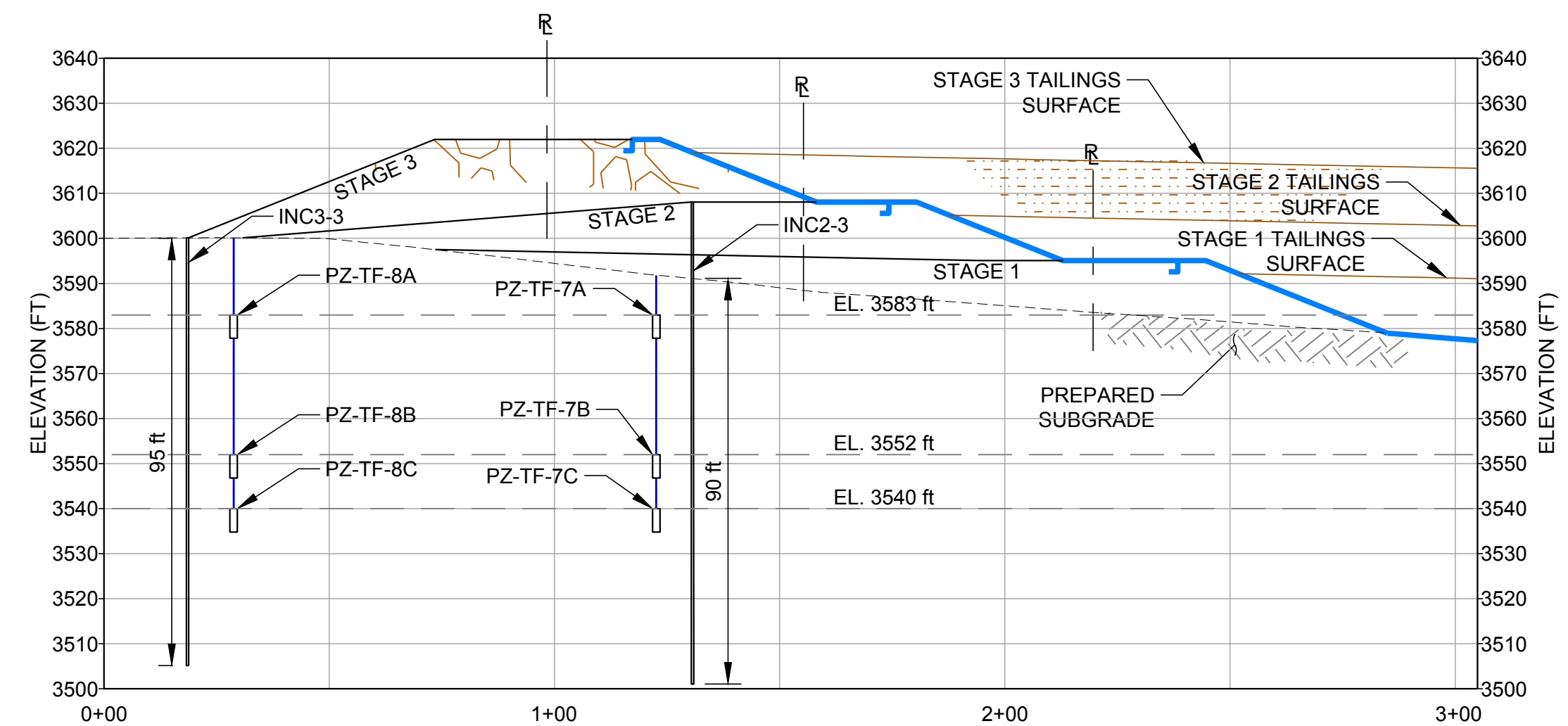
SCALE 1" = 30' **A** NORTH EMBANKMENT PIEZOMETER LOCATIONS (1 OF 2)
11



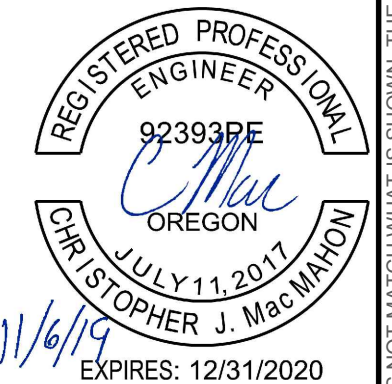
SCALE 1" = 30' **B** NORTH EMBANKMENT PIEZOMETER LOCATIONS (2 OF 2)
11



ISSUED FOR CONSTRUCTION



SCALE 1" = 30' **C** WEST EMBANKMENT PIEZOMETER LOCATIONS
11



CLIENT
CALICO RESOURCES USA CORP.
GRASSY MOUNTAIN PROJECT
MALHEUR COUNTY, OREGON



CONSULTANT

GOLDER ASSOCIATES INC.
595 DOUBLE EAGLE COURT, SUITE 1000
RENO, NV 89521
USA
[+1] (775) 828-9604
www.golder.com



PROJECT
GRASSY MOUNTAIN
TAILINGS STORAGE FACILITY AND WASTE ROCK DUMP
DETAILED DESIGN

TITLE
GEOTECHNICAL INSTRUMENTATION SECTIONS

0 2019-11-06 ISSUED FOR CONSTRUCTION

REV. YYYY-MM-DD DESCRIPTION

MDB JRP CJM RAB

DESIGNED PREPARED REVIEWED APPROVED

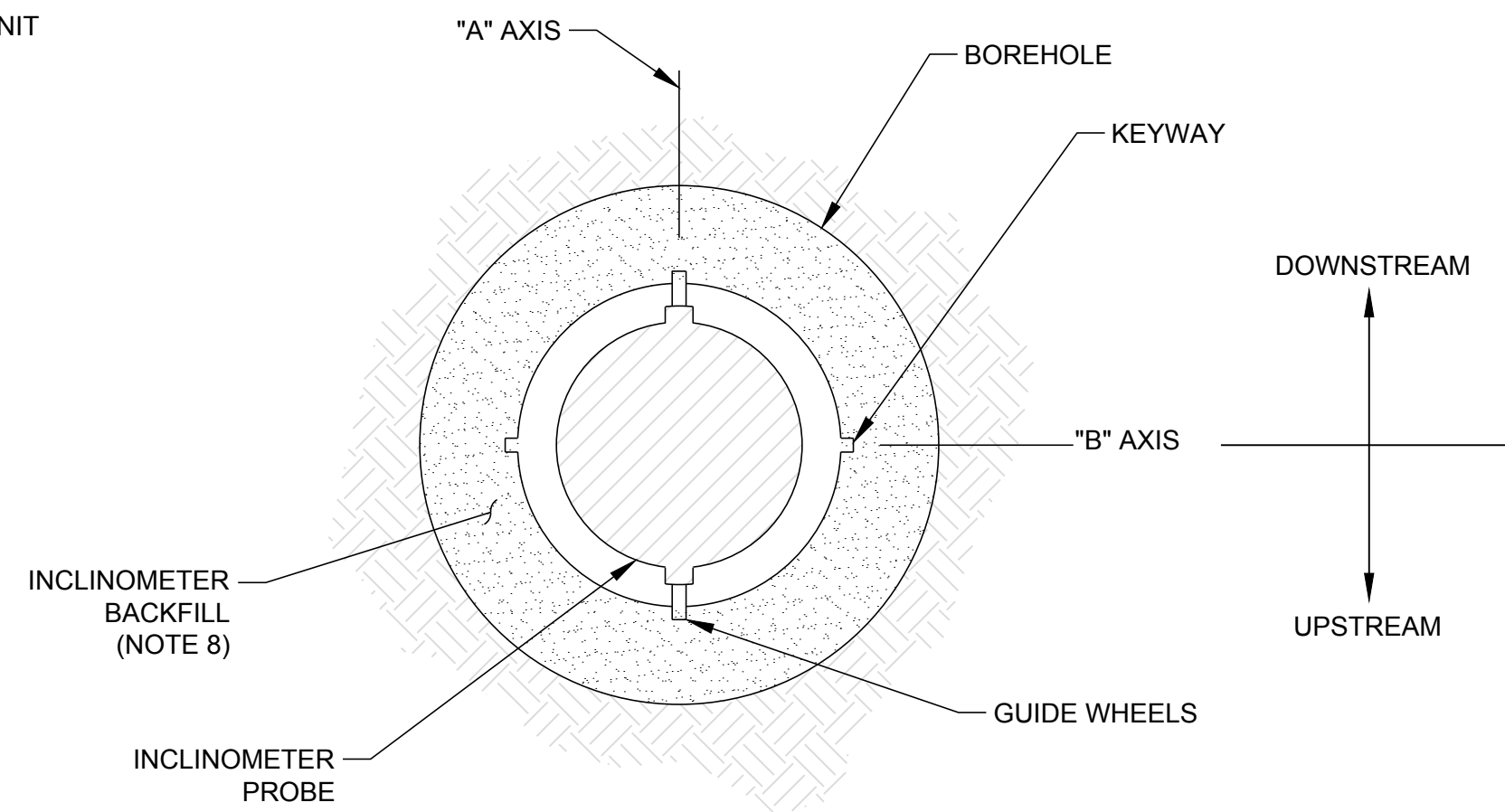
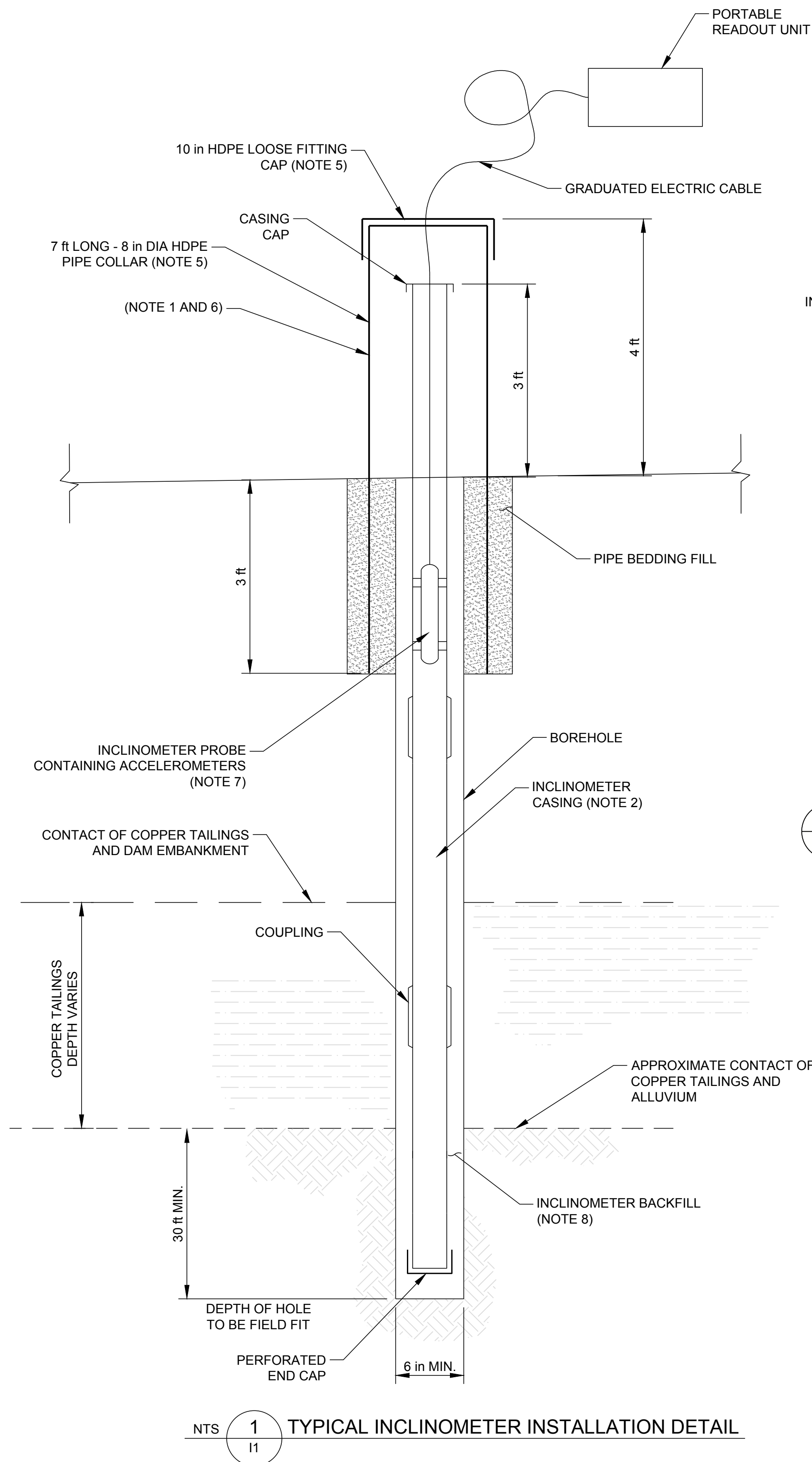
PROJECT NO.
1663241

REV. 0 40 of 42

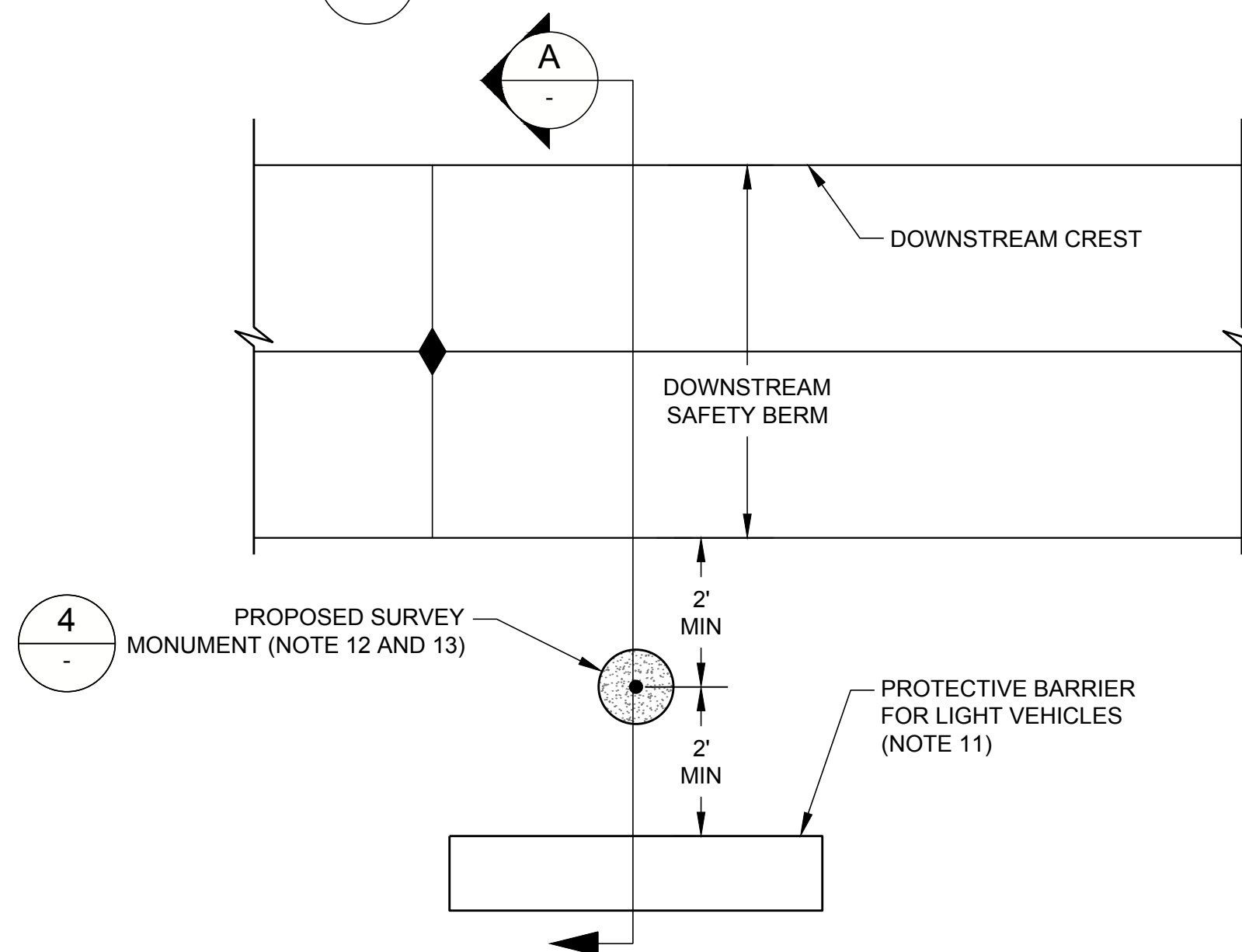
DRAWING
13

1 in IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM A NS/D

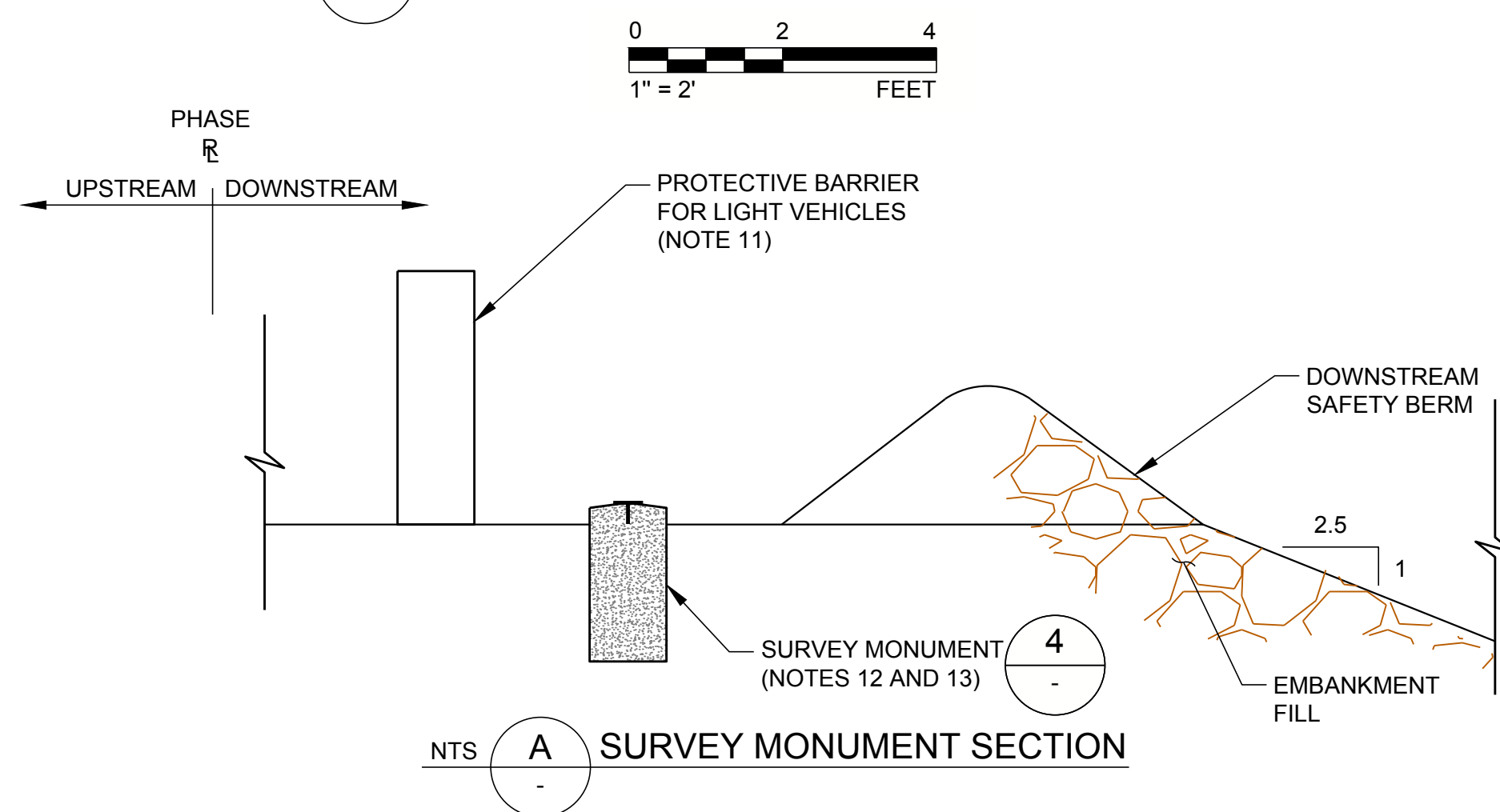
Path: \\verod\del\MDA\166324\Grassy Mountain PFS\600_Drawing\PRODUCTION\CONSOLIDATED PERMIT | File Name: 166324_I_002_Geotechnical Instrumentation Details.dwg | Last Edited By: jlpriya Date: 2019-11-06 Time: 3:50:35 PM | Printed By: jlpriya Date: 2019-11-06 Time: 4:42:07 PM



2 TYPICAL INCLINOMETER CASING DETAIL



3 TYPICAL SURVEY MONUMENT PLAN

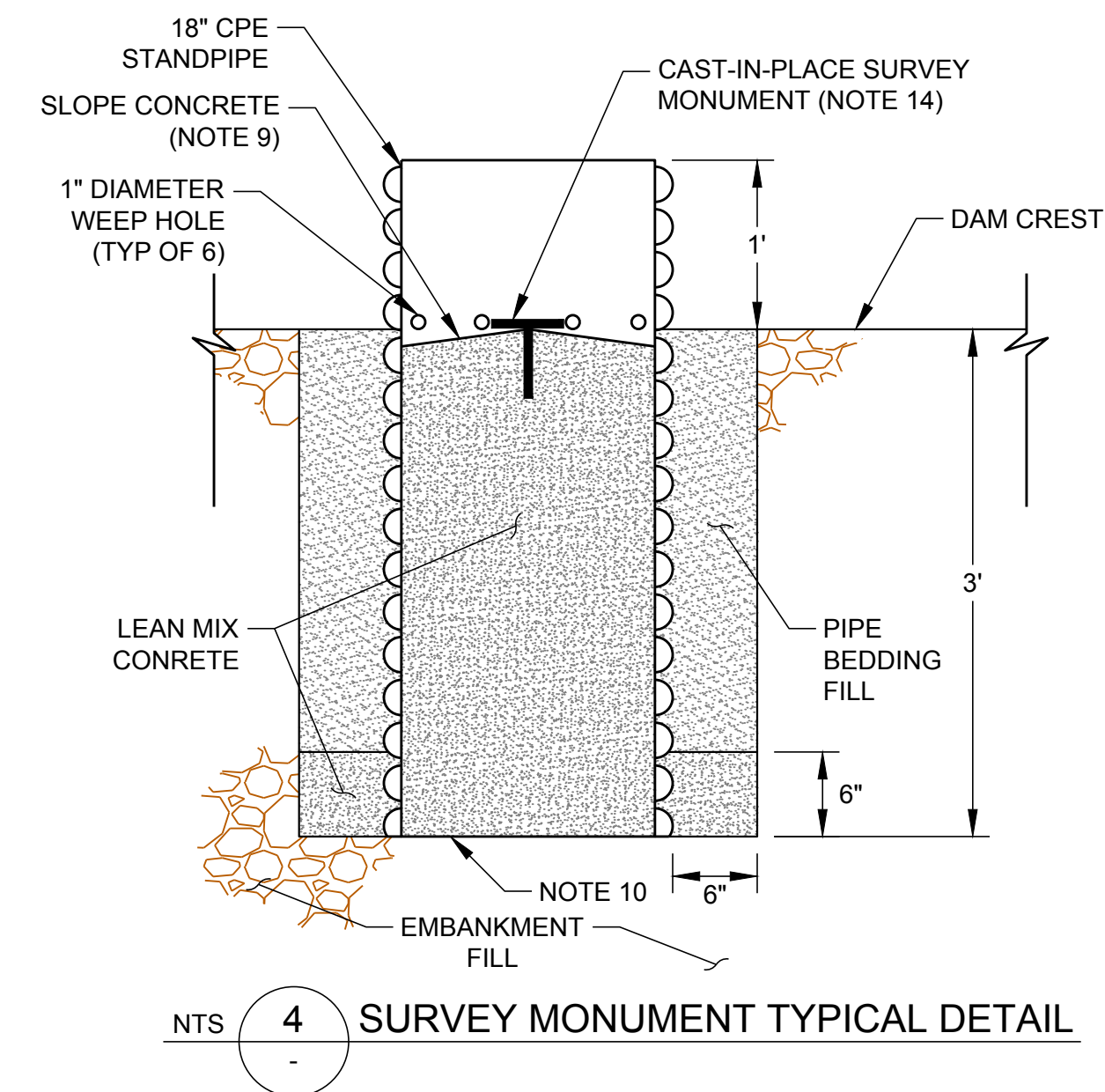


4 SURVEY MONUMENT SECTION

ISSUED FOR CONSTRUCTION

NOTES

1. THE LOCATION OF THE INCLINOMETERS ARE SHOWN ON DRAWING I1A.
2. 2.75" O.D. INCLINOMETER CASING SHALL INCLUDE FOUR KEYWAYS SET AT THE RIGHT ANGLES TO EACH OTHER AND SHALL BE SUPPLIED IN 10 FT LENGTHS WITH COUPLING AND END CAPS. THE KEYWAYS SHALL BE ORIENTATED SUCH THAT MOVEMENTS ARE MEASURED IN THE DIRECTIONS PERPENDICULAR AND PARALLEL TO THE REFERENCE LINE OF THE DAM WITH THE "A" AXIS ALWAYS PERPENDICULAR TO THE R. USE A COMPASS OR SURVEYING EQUIPMENT TO DOCUMENT THE BEARING OF THE "A" AXIS AFTER INSTALLATION.
3. THE ASSEMBLED TUBE SHALL BE LOWERED INTO A 6 INCH MIN. DIAMETER BOREHOLE.
4. ALL EQUIPMENT AND PERMANENT MATERIALS SHALL BE REVIEWED AND APPROVED BY THE ENGINEER BEFORE INSTALLATION.
5. THE INCLINOMETER CASING SHALL BE CASED AND PROTECTED AS SHOWN IN THE FIGURE AND SURROUNDED BY A SAFETY BERM. PAINT EXPOSED COLLAR AND CAP WITH ORANGE PAINT.
6. CLEARLY MARK THE INSTRUMENT NUMBER ON THE PIPE COLLAR.
7. ALTERNATIVE INCLINOMETER TYPES AND CONFIGURATIONS MAY BE EVALUATED FOR USE AND INSTALLED WITH THE APPROVAL OF THE ENGINEER.
8. ANNULAR SPACE BETWEEN BOREHOLES AND INCLINOMETERS SHALL BE BACKFILLED IN ACCORDING WITH MANUFACTURER RECOMMENDATIONS.
9. GRADE CONCRETE SURFACE TO CONVEY WATER AWAY FROM CENTER.
10. LEVEL BASE OF EXCAVATION AND BACKFILL MONUMENT WITH PIPE BEDDING FILL. HAND TAMP TO PROVIDE UNIFORM AND DENSE FILL.
11. AFTER INSTALLATION, PROTECT SURVEY MONUMENTS FROM DAMAGE FROM TRAFFIC AND CONSTRUCTION OPERATIONS.
12. CLEARLY MARK THE MONUMENT NUMBER ON TOP OF THE CONCRETE PIPE BACKFILL.
13. THE LOCATION OF EMBANKMENT CREST SURVEY MONUMENTS ARE SHOWN ON DRAWING I1.
14. CAST-IN-PLACE SURVEY MONUMENTS SHALL BE BRASS SURVEY MARKER MODEL NO. M/M/BCS-2½F (2-1/2 in) AS MANUFACTURED BY SURV-KAP, OR EQUIVALENT APPROVED BY THE ENGINEER.



4 SURVEY MONUMENT TYPICAL DETAIL

CLIENT
CALICO RESOURCES USA CORP.
GRASSY MOUNTAIN PROJECT
MALHEUR COUNTY, OREGON

CONSULTANT



GOLDER ASSOCIATES INC.
595 DOUBLE EAGLE COURT, SUITE 1000
RENO, NV 89521
USA
[+1] (775) 828-9604
www.golder.com



PROJECT
GRASSY MOUNTAIN
TAILINGS STORAGE FACILITY AND WASTE ROCK DUMP
DETAILED DESIGN

TITLE
GEOTECHNICAL INSTRUMENTATION DETAILS (1 OF 2)

PROJECT NO.
1663241

REV. 0
41 of 42

DRAWING
14

0 2019-11-06 ISSUED FOR CONSTRUCTION

REV. YYYY-MM-DD DESCRIPTION

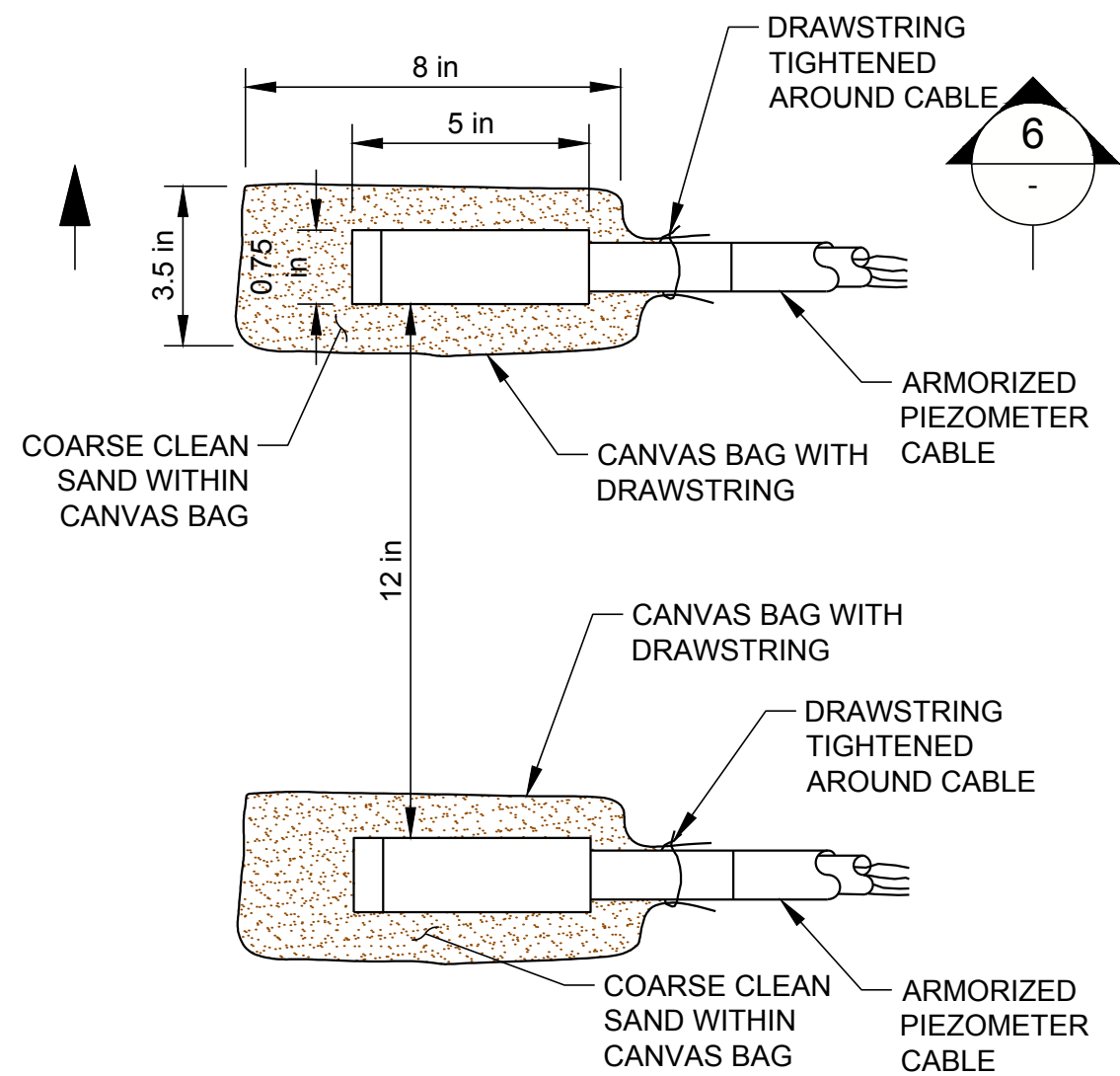
MDB JRP CJM RAB

DESIGNED PREPARED REVIEWED APPROVED

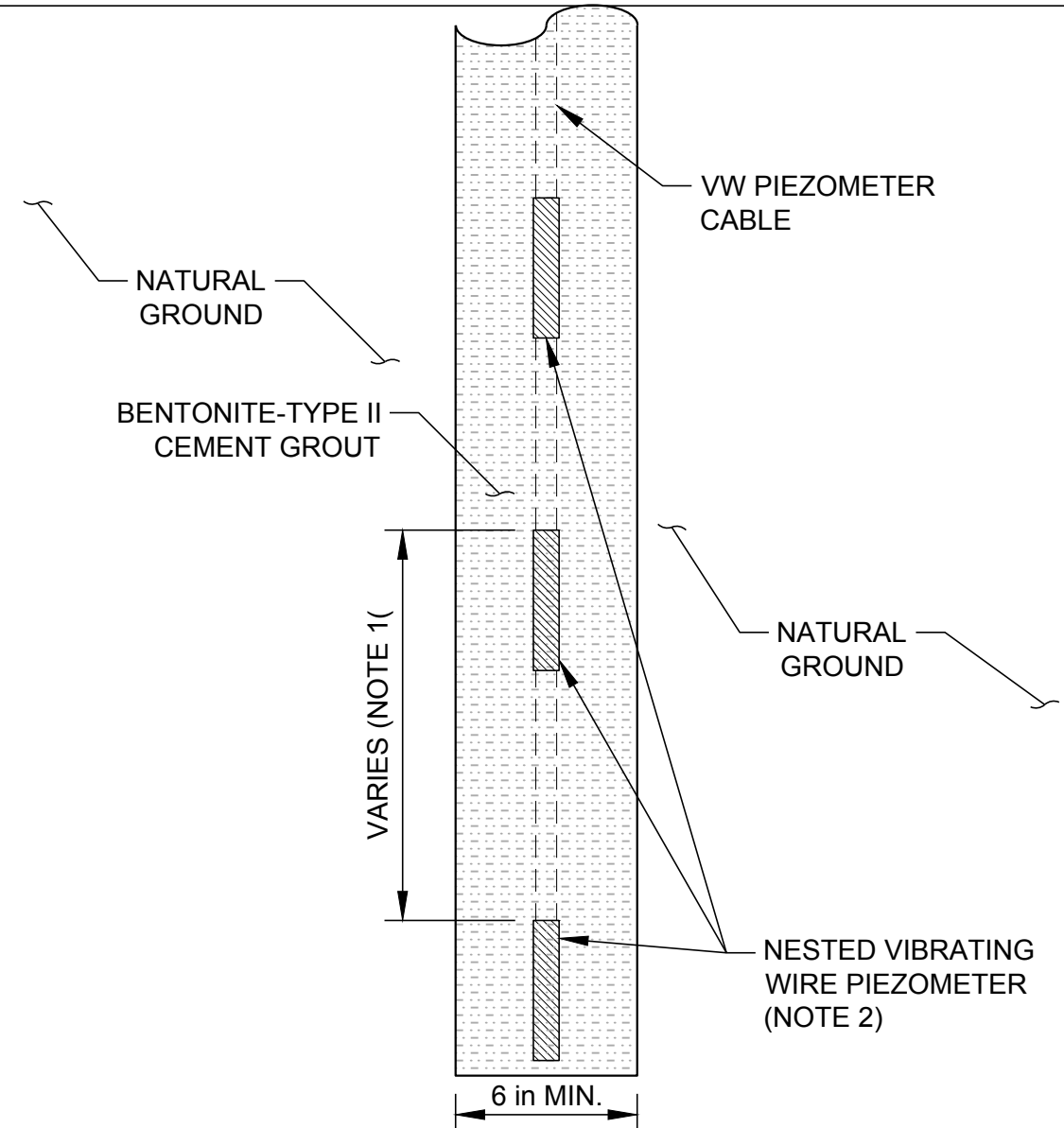


1 in IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM A3 AND D

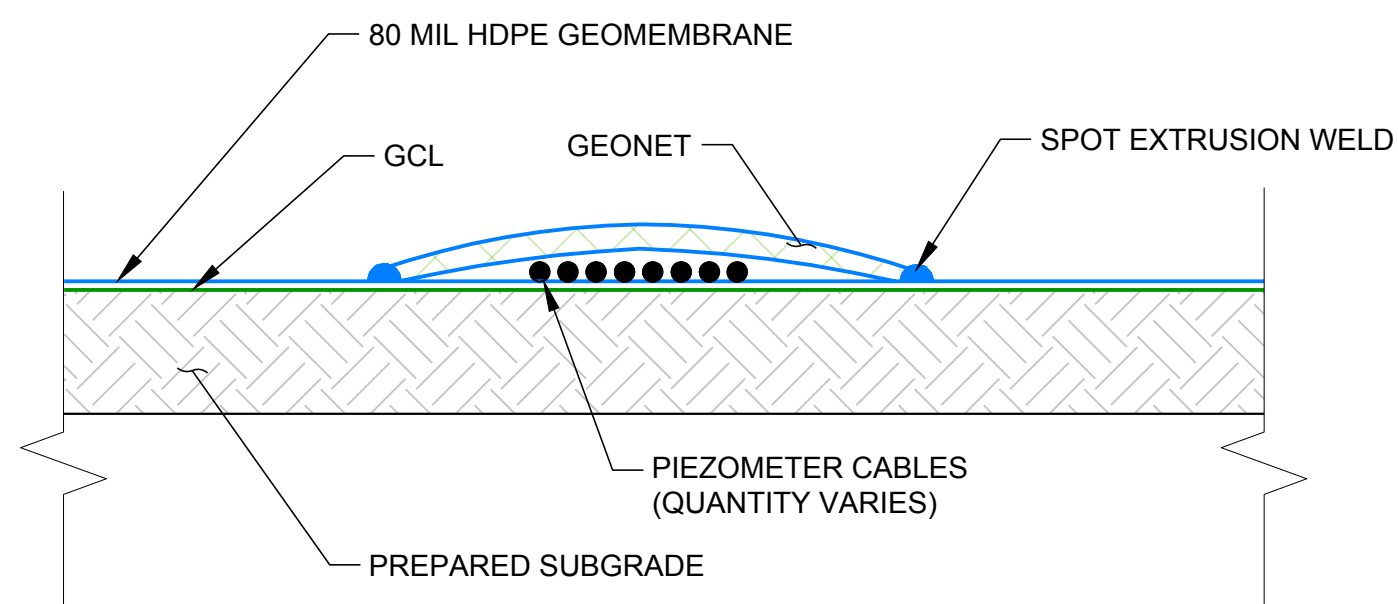
Path: \\verod\delm\DAI\1663241_Grassy Mountain PFS\600_Drawing\PRODUCTION\CONSOLIDATED PERMIT | File Name: 1663241_I_002_Geotechnical Instrumentation Details.dwg | Last Edited By: jgpriza Date: 2019-11-06 Time: 3:50:35 PM | Printed By: jgpriza Date: 2019-11-06 Time: 4:42:12 PM



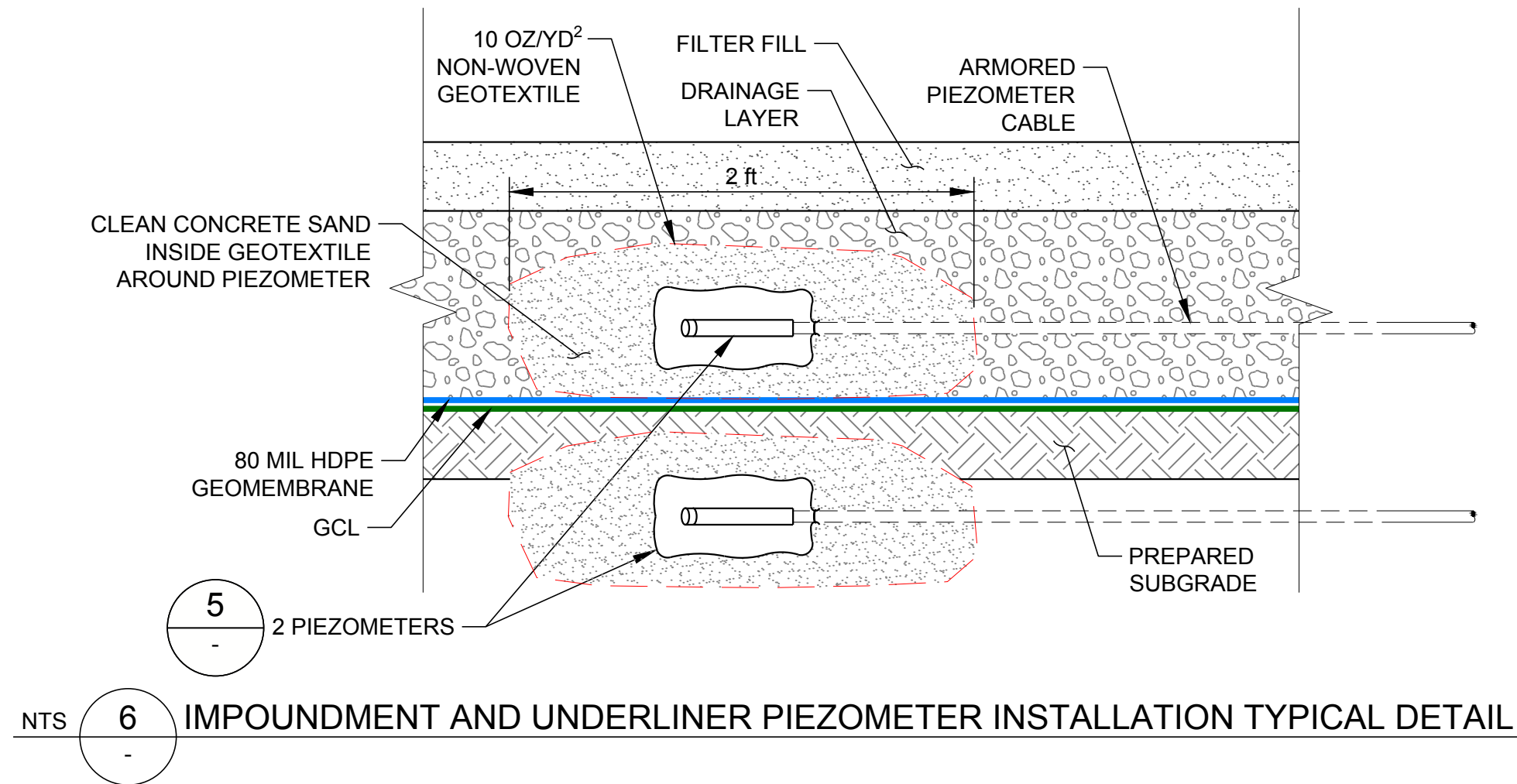
NTS 5 IMPOUNDMENT AND UNDERLINER VIBRATING WIRE PIEZOMETER TYPICAL DETAIL



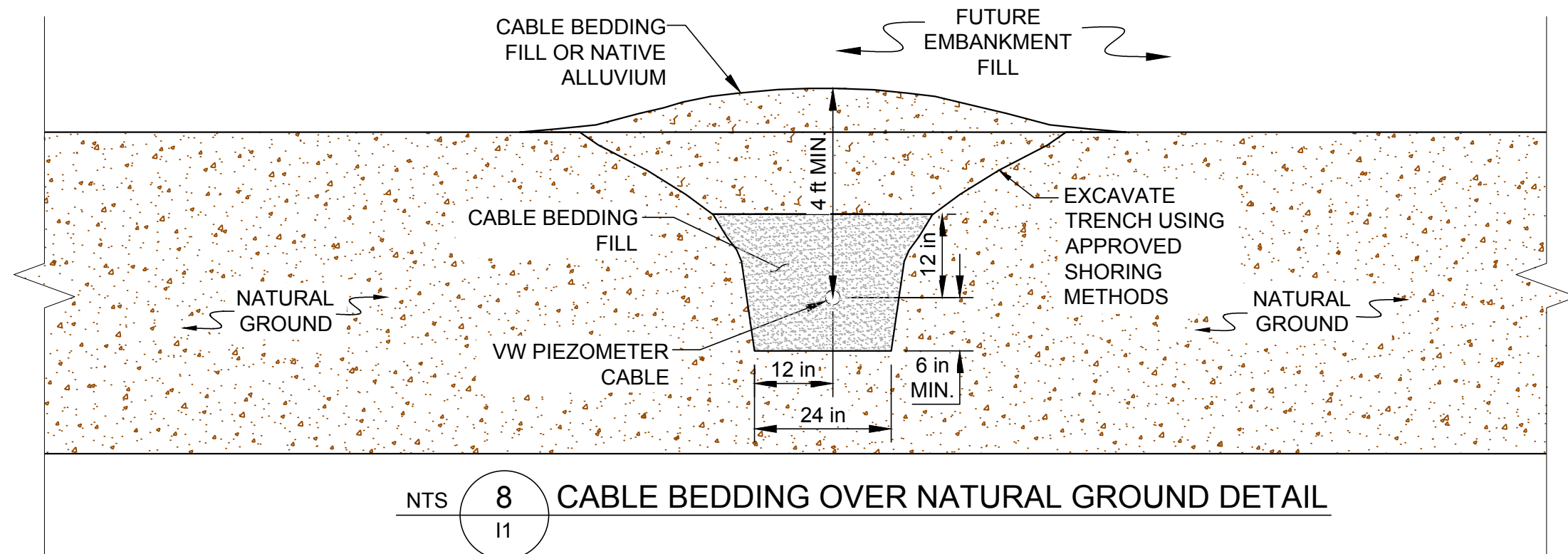
NTS 7 PIEZOMETER SAND FILTER ZONE



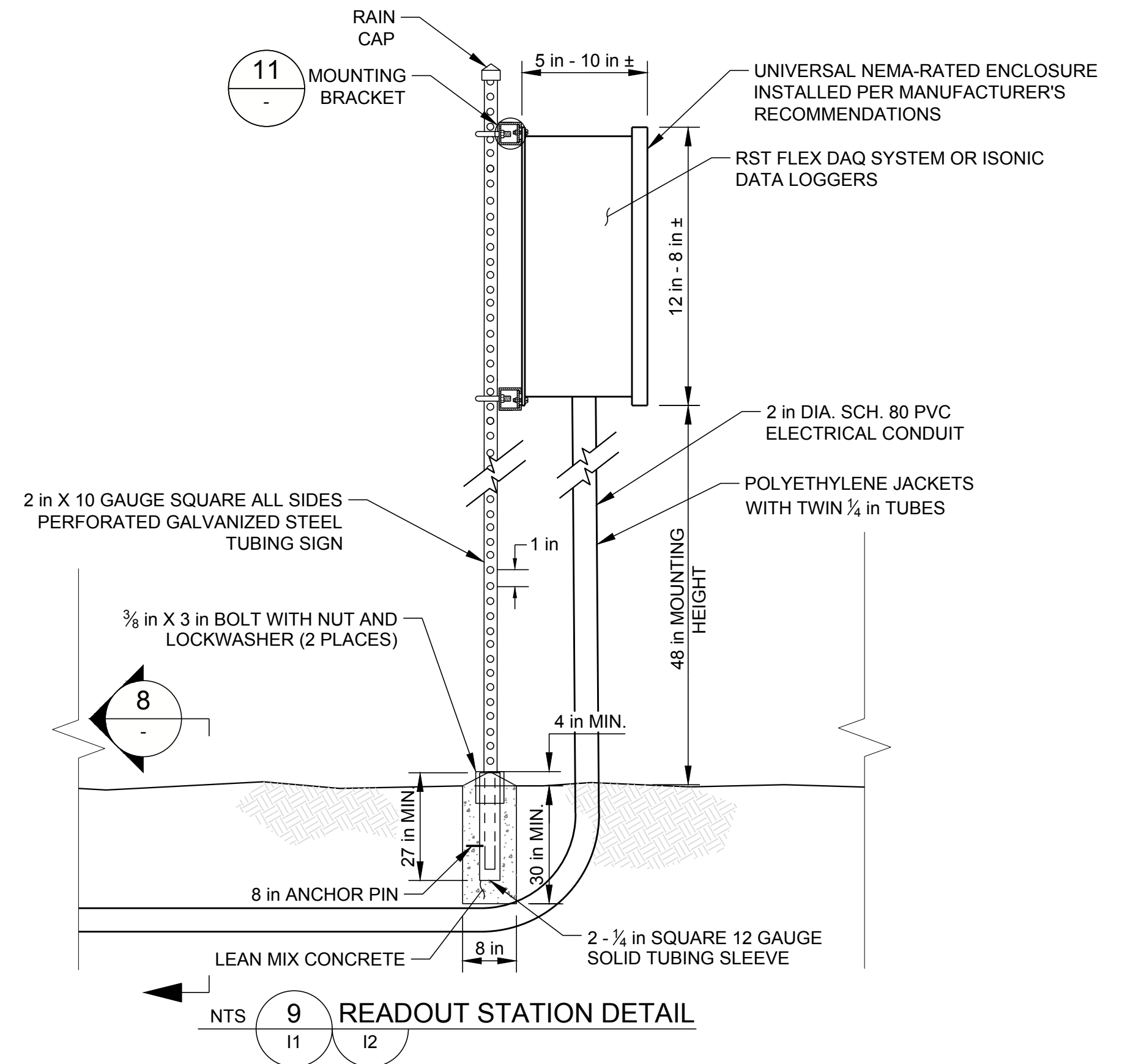
NTS 10 CABLES ON EMBANKMENT DETAIL



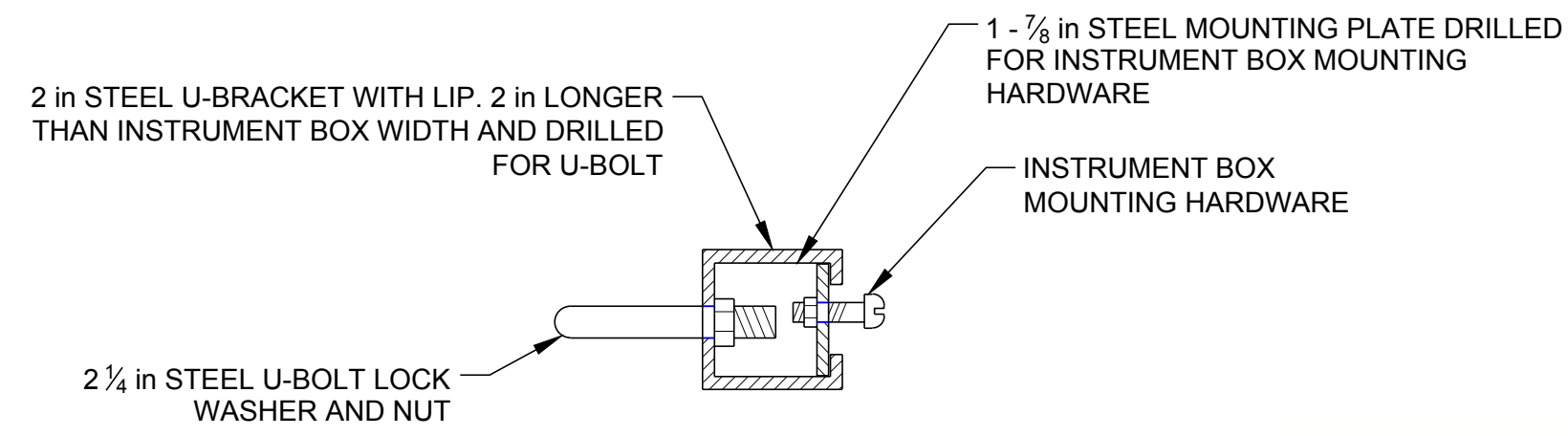
NTS 6 IMPOUNDMENT AND UNDERLINER PIEZOMETER INSTALLATION TYPICAL DETAIL



NTS 8 CABLE BEDDING OVER NATURAL GROUND DETAIL



NTS 9 READOUT STATION DETAIL



NTS 11 MOUNTING BRACKET DETAIL

ISSUED FOR CONSTRUCTION

CLIENT
CALICO RESOURCES USA CORP.
GRASSY MOUNTAIN PROJECT
MALHEUR COUNTY, OREGON



CONSULTANT

GOLDER ASSOCIATES INC.
595 DOUBLE EAGLE COURT, SUITE 1000
RENO, NV 89521
USA
[+1] (775) 828-9604
www.golder.com



PROJECT
GRASSY MOUNTAIN
TAILINGS STORAGE FACILITY AND WASTE ROCK DUMP
DETAILED DESIGN

TITLE
GEOTECHNICAL INSTRUMENTATION DETAILS (2 OF 2)

PROJECT NO.
1663241

REV. 0 42 of 42

DRAWING
15



1 in IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM A3 AND D