

GENERAL NOTES

- ALL WORK NOT SPECIFICALLY INCLUDED IN THE BID ITEMS TO PROVIDE A COMPLETE PROJECT SHALL BE CONSIDERED INCIDENTAL TO THE WORK AND NO SEPARATE PAYMENT WILL BE MADE.
- ALL WORKMANSHIP AND MATERIALS SHALL CONFORM TO THE OREGON STANDARD SPECIFICATIONS AND CONSTRUCTION ODOT/APWA (OREGON 2008). GENERAL REQUIREMENTS AND CONTRACT ADMINISTRATION SHALL BE PERFORMED AS SPECIFIED IN THE BID DOCUMENTS. THE CONTRACTOR SHALL PROVIDE A MATERIAL SUBMITTAL TO THE ENGINEER AND OBTAIN APPROVAL PRIOR TO ORDERING MATERIALS.
- MANY OF THE UNDERGROUND UTILITIES ARE GRAPHICALLY SHOWN BASED UPON INFORMATION PROVIDED BY OREGON INSTITUTE OF TECHNOLOGY MAINTENANCE STAFF. LOCATIONS ARE APPROXIMATE AND SHOULD BE FIELD VERIFIED PRIOR TO PIPE INSTALLATION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT "OREGON UTILITY NOTIFICATION CENTER" AT 1-800-332-2344 PRIOR TO CONSTRUCTION FOR LOCATION OF ALL UNDERGROUND FACILITIES. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR CONTACTING THE APPROPRIATE PUBLIC AGENCIES FOR THE LOCATION OF ALL UNDERGROUND UTILITIES.
- ALL UTILITIES SHOWN ARE ACCURATE TO THE EXTENT OF AVAILABLE RECORDS AND KNOWLEDGE. POT HOLE TO VERIFY UTILITY LOCATIONS AND ELEVATIONS WAS NOT AUTHORIZED BY THE OWNER. THE CONTRACTOR HAS TOTAL RESPONSIBILITY IN VERIFYING THE LOCATION OF EXISTING UNDERGROUND UTILITIES AND TO NOTIFY THE UTILITY COMPANIES WHEN WORKING IN THEIR PROXIMITY. ANY DISCREPANCIES BETWEEN THE PLANS AND ACTUAL FIELD CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE INSPECTOR AND DESIGN ENGINEER IMMEDIATELY.
- ANY DAMAGE TO EXISTING FACILITIES OR IMPROVEMENTS, RESULTING FROM THE CONTRACTOR'S OPERATION, SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE.
- THE CONTRACTOR SHALL EXPOSE, VERIFY, CONNECT AND/OR MATCH EXISTING UTILITIES AND IMPROVEMENTS, IN CONFORMANCE WITH THE INTENT OF THESE PLANS AND SPECIFICATIONS, TO PROVIDE COMPLETE AND/OR OPERATIONAL SYSTEMS.
- DURING THE COURSE OF THE WORK, THE CONTRACTOR SHALL COORDINATE AND ACCOMMODATE OTHER CONTRACTORS OR OPERATIONS OF OWNER.
- CONTRACTORS SHALL NOTIFY PUBLIC AGENCIES AND THE DESIGN ENGINEER (2) WORKING DAYS IN ADVANCE OF STARTING CONSTRUCTION AND SHALL COORDINATE NECESSARY INSPECTION THROUGH FINAL APPROVAL. THE CONTRACTOR SHALL NOT COMMENCE ANY WORK WITHOUT FIRST RECEIVING A NOTICE TO PROCEED FROM THE ENGINEER, ATTEND A PRE-CONSTRUCTION MEETING, AND BE ISSUED A SITE CONSTRUCTION PERMIT FROM CITY ENGINEERING.
- THE CONTRACTOR SHALL EMPLOY ALL LABOR, EQUIPMENT, AND METHODS REQUIRED TO PREVENT THEIR OPERATIONS FROM PRODUCING DUST IN AMOUNTS DAMAGING TO PROPERTY, CULTIVATED VEGETATION, AND DOMESTIC ANIMALS OR CAUSING A NUISANCE TO PERSONS OCCUPYING BUILDINGS IN THE VICINITY OF THE JOB SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE CAUSED BY DUST RESULTING FROM HIS OPERATIONS.
- CONTRACTOR IS RESPONSIBLE FOR DETERMINING DEPTH OF BURY OF GEOTHERMAL PIPE (AND CONDUITS BASED UPON THE BEGINNING DEPTH SHOWN, 12" MINIMUM CLEARANCE AT CROSSINGS AND 3' MINIMUM DEPTH OF COVER. CONTRACTOR SHALL POT HOLE AND ACCURATELY LOCATE ALL EXISTING UTILITIES WITHIN 150' BEFORE INSTALLING ANY PIPE.
- CONTRACTOR SHALL VERIFY ALL CONDITIONS ON THE JOB SITE INCLUDING ALL DIMENSIONS, GRADES, ELEVATIONS, EXTENT AND COMPATIBILITY TO THE EXISTING SITE CONDITIONS, AND WITH THE WORK DESCRIBED ON THE DESIGN ENGINEER'S DRAWINGS. ANY DISCREPANCIES OR UNEXPECTED CONDITIONS THAT AFFECT OR CHANGE THE WORK DESCRIBED IN THE CONTRACT DOCUMENTS SHALL BE BROUGHT TO THE DESIGN ENGINEER'S ATTENTION IMMEDIATELY. THE CONTRACTOR SHALL NOT PROCEED WITH ANY OF THE WORK IN THE AREA OF DISCREPANCIES UNTIL ALL SUCH DISCREPANCIES ARE RESOLVED. IF THE CONTRACTOR CHOOSES TO DO SO, THEN IT IS UNDERSTOOD THAT HE SHALL BE PROCEEDING AT HIS OWN RISK AND INCUR ALL COST, IF ANY, TO RESOLVE THE ISSUE TO THE SATISFACTION OF THE ENGINEER.
- THE CONTRACTOR SHALL KEEP ON SITE A SET OF DRAWINGS REFLECTING THE CURRENT "AS BUILT" INFORMATION INCLUDING ALL UTILITY LOCATIONS AND UPON COMPLETION OF THE PROJECT THE CONTRACTOR WITHIN 7 DAYS OF COMPLETION SHALL FURNISH ONE SET OF THE "AS BUILT" DRAWINGS TO THE SITE ENGINEER.
- ALL PRIVATE IMPROVEMENTS SHALL ALSO BE CONSTRUCTED IN CONFORMANCE WITH THE LATEST EDITION OF THE UNIFORM BUILDING, PLUMBING AND FIRE CODES EFFECTIVE AT TIME OF SUBMISSION OF THESE DOCUMENTS, WHERE ODOT/APWA SPECIFICATIONS CONFLICT WITH THE UNIFORM BUILDING, PLUMBING, AND FIRE CODES, THE LATTER WILL PREVAIL.
- ALL TRENCH BACKFILL AND AREAS TO BE PAVED WITH CONCRETE, ASPHALT OR GRAVEL, SHALL BE COMPACTED TO A MINIMUM OF 95% OF MAXIMUM DRY DENSITY PER AASHTO T-99. TRENCH BACKFILL IN SOIL AREAS OUTSIDE OF PAVING SHALL BE COMPACTED TO A MINIMUM OF 90% OF MAXIMUM DRY DENSITY PER AASHTO T-99.
- ALL UNSUITABLE SOILS, MATERIALS, RUBBISH, AND DEBRIS RESULTING FROM GRADING OPERATIONS SHALL BE REMOVED FROM THE JOB SITE UNLESS OTHERWISE DIRECTED BY THE OREGON INSTITUTE OF TECHNOLOGY FACILITIES SERVICES. EXISTING UNSUITABLE SOILS 3" & SMALLER MAY BE USED IN THE FILL AREAS TO THE FINISH GRADES INDICATED ON THE PLANS.
- THE CONTRACTOR SHALL BE REQUIRED TO VISIT SITE AND REVIEW THE GRADING AND EROSION CONTROL PLAN PRIOR TO BIDDING TO FAMILIARIZE THEMSELVES THE DEMOLITION, GRADING, ETC. AND IMPROVEMENT TO REMAIN.
- CONTRACTOR SHALL BE RESPONSIBLE TO REMOVE ANY AND ALL ITEMS NOT OTHERWISE LISTED HEREIN THAT CONFLICT WITH THE CONSTRUCTION OF THE PROJECT. CONTRACTOR SHALL CONTACT ENGINEER IMMEDIATELY TO DETERMINE ANY ITEMS NOT SHOWN ON THE PLANS THAT MUST BE REMOVED. FAILURE TO DO SO DOES NOT RELIEVE CONTRACTOR OF RESPONSIBILITY AND COST FOR REMOVING ITEMS REQUIRED.
- CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS, WITH THE EXCEPTION OF THE DEQ 1200-C EROSION & SEDIMENT CONTROL PLAN PERMIT OBTAINED BY THE OWNER.
- MONUMENTS DISTURBED DURING CONSTRUCTION SHALL BE REPLACED AT THE CONTRACTORS EXPENSE.
- ROADS SHALL BE KEPT CLEAN FROM MUD AND DEBRIS AT ALL TIMES. ANY SPILLAGE OR TRACKING OF DEBRIS ONTO ROADWAY SHALL BE CLEANED UP IMMEDIATELY.
- EXISTING SIGNS SHALL BE REPLACED IF DISTURBED DURING CONSTRUCTION.
- TOPOGRAPHIC INFORMATION IS FROM SURVEYS PERFORMED IN 2011 ALONG WITH 2005 CITY OF KLAMATH FALLS CONTOURS AND FROM OTHER SOURCES.

2011 GEOTHERMAL UTILITY CORRIDOR FOR OREGON INSTITUTE OF TECHNOLOGY KLAMATH FALLS, OREGON

PROJECT TEAM

OWNER
OREGON INSTITUTE OF TECHNOLOGY
3201 CAMPUS DRIVE
KLAMATH FALLS, OREGON 97601
(541) 885-1600

PROJECT ENGINEER & SURVEYOR
ADKINS CONSULTING ENGINEERS, INC.
2950 SHASTA WAY
KLAMATH FALLS, OR 97603
(541) 884-4666

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SHEET C2 - SHEET INDEX

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PLAN & PROFILE - SANITARY SEWER/GEOTHERMAL RETURN PIPE

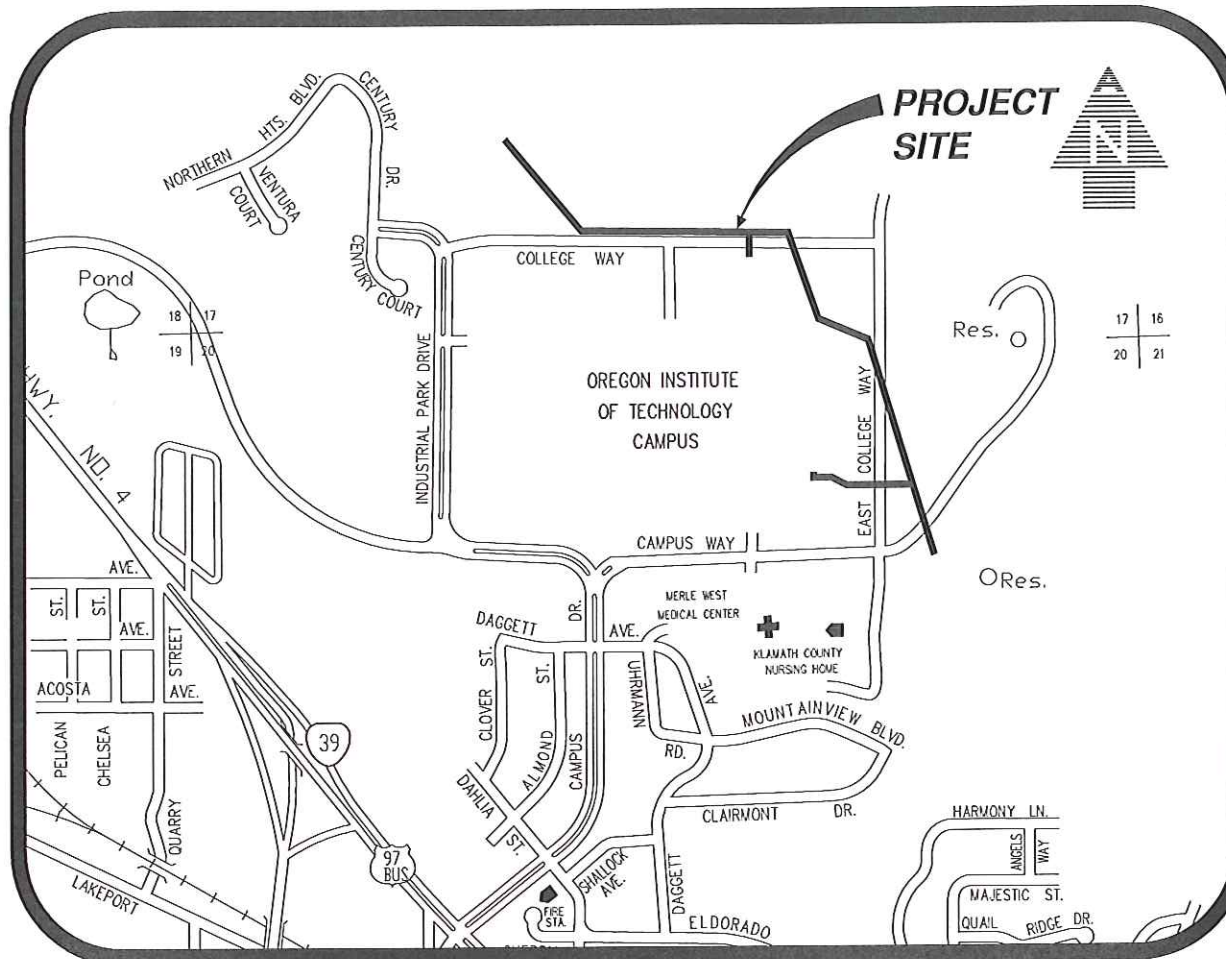
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VICINITY MAP
N.T.S.

LEGEND

EXISTING	PROPOSED	ABBREVIATIONS	
— — — — — EDGE OF PAVEMENT	— COM — ELECTRICAL & DATA CONDUITS	AC	ASBESTOS CEMENT
— — — — — EDGE OF GRAVEL	— GEO (PR) — GEOTHERMAL - PRIMARY RETURN	A/C	ASPHALT CONCRETE
— — — — — EDGE OF DIRT ROAD	— 4398 — CONTOUR WITH ELEVATION	ALIGN.	ALIGNMENT
— o — o — o — FENCE	— S — SANITARY SEWER	BFPD	BACKFLOW PREVENTION DEVICE
— — — — — CENTERLINE	⊙ SANITARY SEWER MANHOLE	C.I.	CAST IRON
— — — — — STORM DRAIN	⊙ INJECTION WELL BY OTHERS	CL	CENTERLINE
— — — — — UNDERGROUND POWER	⊘ ASPHALT REPAIR AREA	CLR.	CLEARANCE
— — — — — WATER	⊗ VALVE	CSDN	CITY STANDARD DETAIL NUMBER
— — — — — GAS		DIP	DUCTILE IRON PIPE
— — — — — CONTOUR WITH ELEVATION		ELEV.	ELEVATION
— — — — — GEOTHERMAL		EP	EDGE OF PAVEMENT
— — — — — COMMUNICATIONS		EXIST	EXISTING
— — — — — SEWER		F	FLANGE JOINT FITTING
		GV	GATE VALVE
		IE	INVERT ELEVATION
		LT	LEFT
		LF	LINEAR FEET
		MIN	MINIMUM
		O.D.	OUTSIDE DIAMETER
		PVC	POLYVINYLCHLORIDE
		RT	RIGHT
		R	RESTRAINED (JOINT)
		ROW	RIGHT-OF-WAY
		SCH	SCHEDULE
		SD	STORM DRAIN
		SDMH	STORM DRAIN MANHOLE
		SSMH	SANITARY SEWER MANHOLE
		STA	STATION
		STL	STEEL
		TB	THRUST BLOCK
		TYP	TYPICAL
		W/L	WATER LINE
⊓	RETAINING WALL		
⊛	POWER POLE		
⊔	JUNCTION BOX		
⊕	TRANSFORMER		
⊖	GAS VALVE		
⊗	WATER METER		
⊘	VALVE		
⊙	SCORE BOARD		
⊚	SEWER MANHOLE		
⊛	SIDEWALK		
⊜	SPRINKLER		
⊝	TREE		
⊞	GATE POST		
⊟	SIGN		
⊠	BENCHMARK (SEE SHEET C2)		

APPROVALS

OREGON INSTITUTE OF TECHNOLOGY

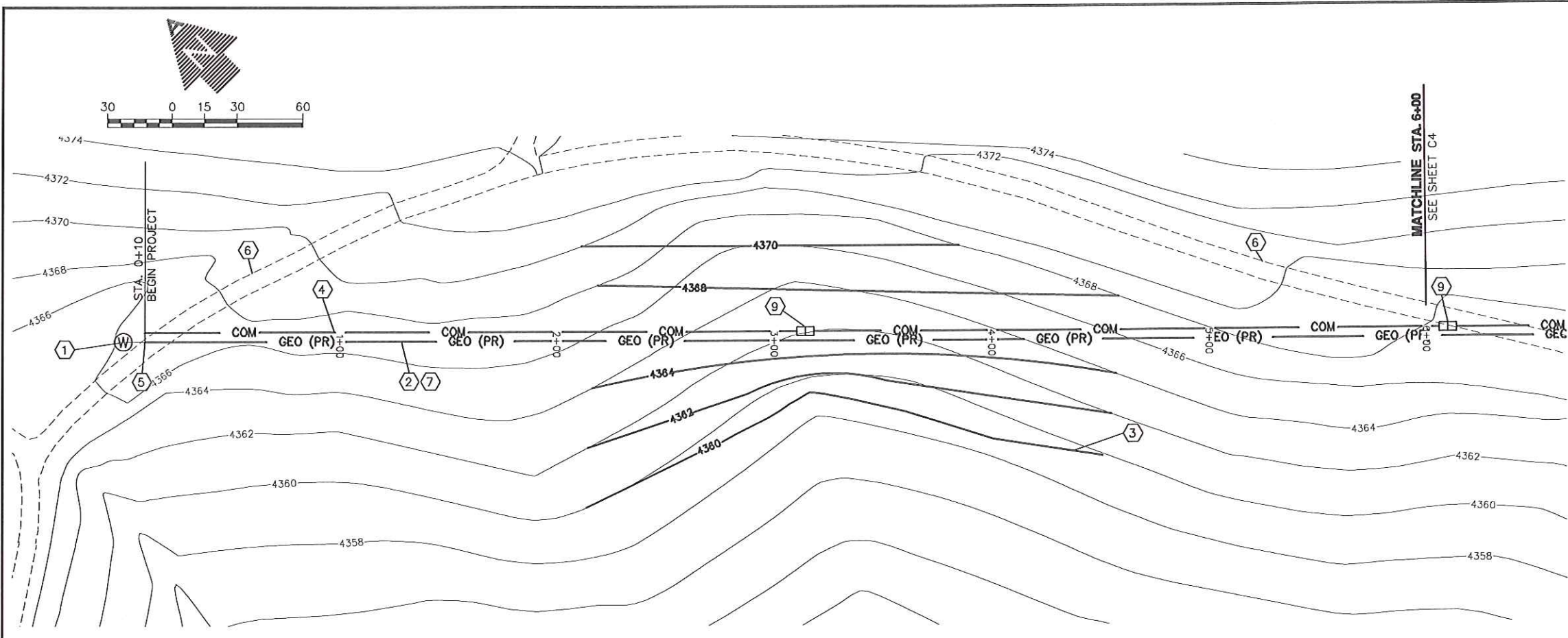


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DATE:	05-01-12
PROJECT:	1090-27
FILE:	C1.dwg
DESIGNED BY:	JM
DRAWN BY:	SJM
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SHEET:	C1 OF 22

C1

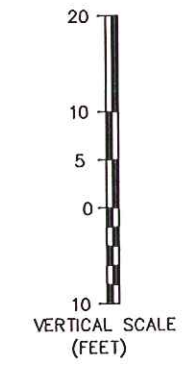
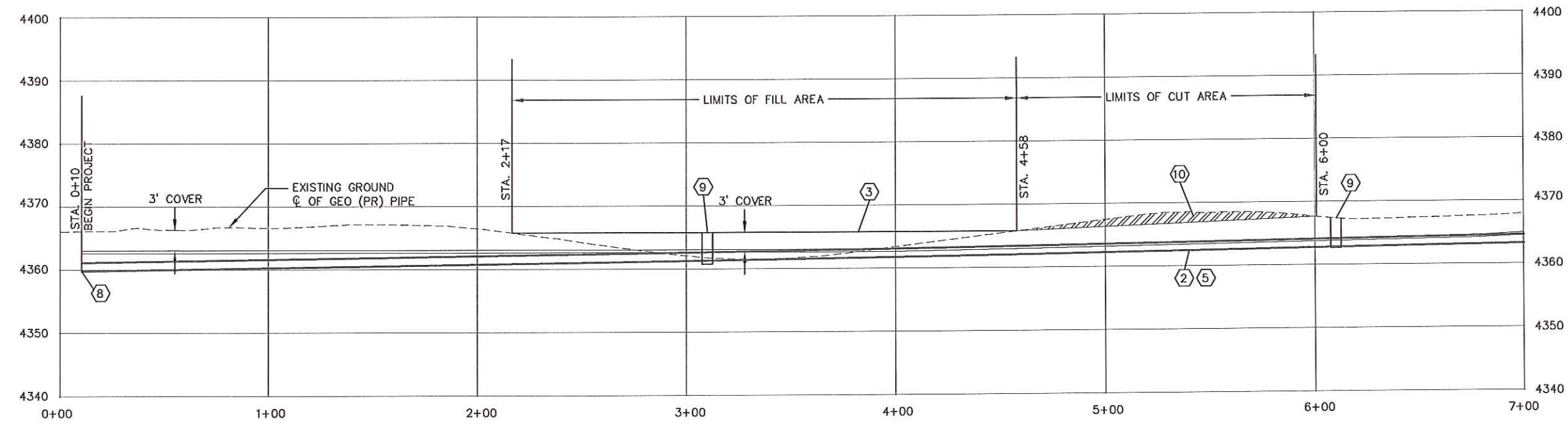
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- CONSTRUCTION NOTES**
- ① STA. 0+00, PROPOSED INJECTION WELL. CONSTRUCTION BY OTHERS.
 - ② INSTALL 12" NON-INSULATED GEOTHERMAL DUCTILE IRON PIPE WITH 3' MINIMUM COVER PER DETAIL 1, SHEET C14.
 - ③ STA. 2+17 TO 4+58, LIMITS OF FILL AREA. FILL TO OBTAIN 3' MINIMUM COVER OVER PIPELINE.
 - ④ INSTALL 2-5" SCH. 40 PVC ELECTRICAL CONDUITS & 2-2" SCH. 40 PVC DATA CONDUITS WITH 3' MINIMUM COVER UNLESS OTHERWISE SHOWN PER DETAIL 2, SHEET C14.
 - ⑤ CAP ENDS OF ALL PIPELINES AND CONDUITS AND MARK WITH 2"x4" 12" ABOVE SURFACE.
 - ⑥ EXISTING DIRT ROAD.
 - ⑦ ALL PIPE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.
 - ⑧ STA. 0+10, IE = 4359.79.
 - ⑨ STA. 3+10 AND 6+10, INSTALL PRE-CAST ELECTRICAL AND COMMUNICATION VAULTS PER DETAIL 1, SHEET C13.
 - ⑩ STA. 4+58 TO 6+00, CUT TO GRADE. USE SPOILS FOR FILL AREAS CALLED OUT IN PLANS.

HORIZONTAL AND VERTICAL UTILITY LOCATIONS ARE SHOWN FROM BEST AVAILABLE RECORD INFORMATION. CONTRACTOR TO VERIFY LOCATIONS AND DEPTHS. IF LOCATIONS OR DEPTHS CONFLICT WITH DESIGN, COORDINATE WITH THE ENGINEER IMMEDIATELY.

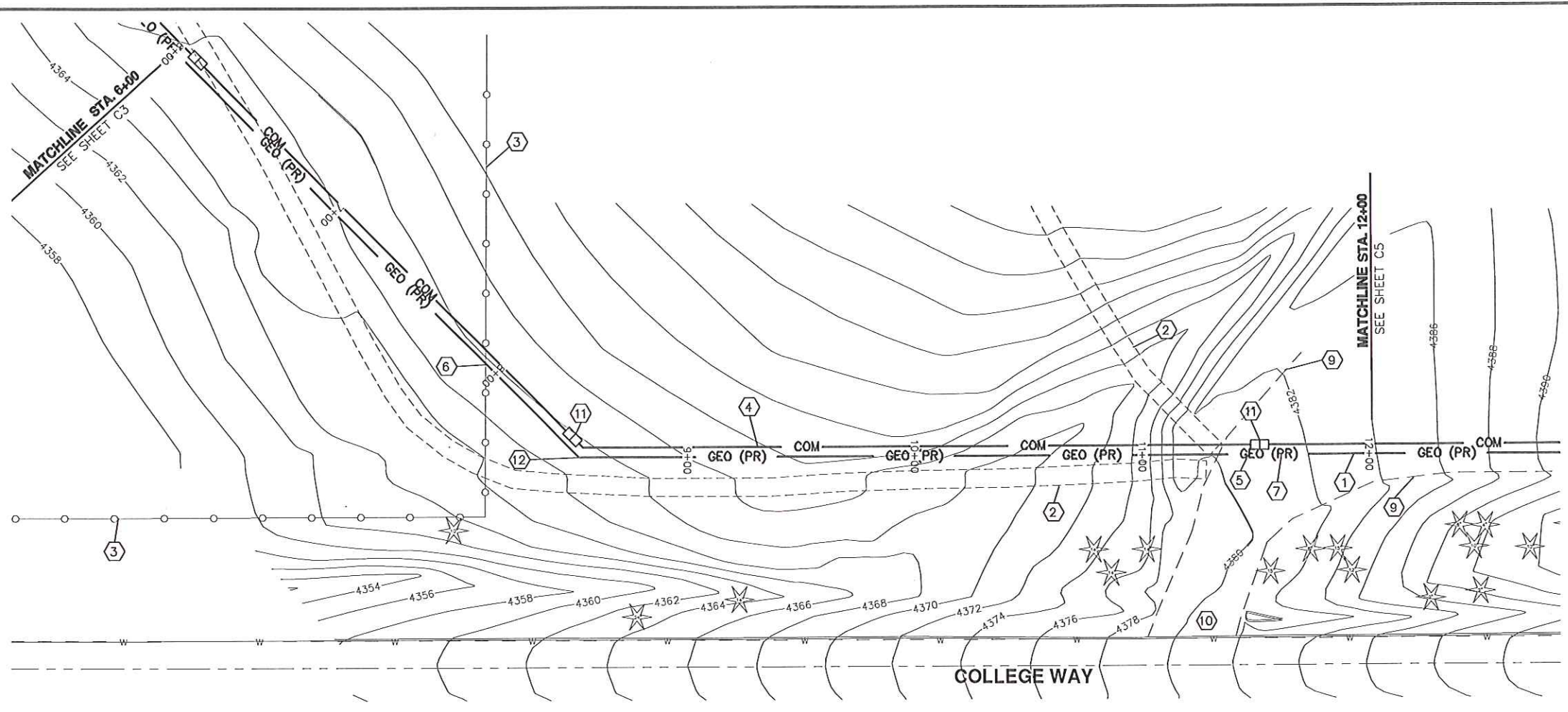
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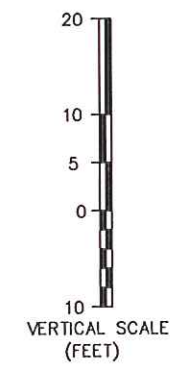
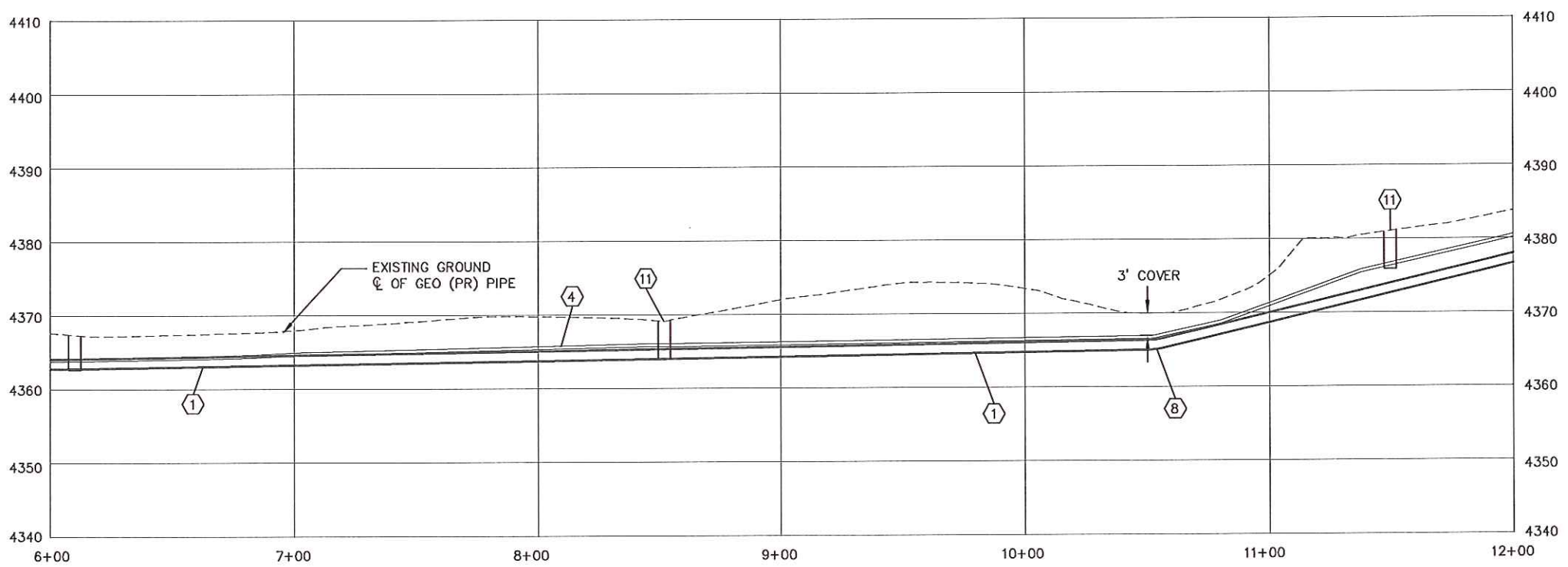


- CONSTRUCTION NOTES**
- 1 INSTALL 12" NON-INSULATED GEOTHERMAL DUCTILE IRON PIPE WITH 3' MINIMUM COVER PER DETAIL 1, SHEET C14.
 - 2 EXISTING DIRT ROAD.
 - 3 EXISTING FENCE.
 - 4 INSTALL 2-5" SCH. 40 PVC ELECTRICAL CONDUITS & 2-2" SCH. 40 PVC DATA CONDUITS WITH 3' MINIMUM COVER UNLESS OTHERWISE SHOWN PER DETAIL 2 SHEET C14.
 - 5 STA. 11+33 TO 15+55, OPEN CUT GRAVEL PARKING LOT. RECONSTRUCT TO ORIGINAL OR BETTER CONDITION AFTER PIPE INSTALLATION.
 - 6 REMOVE FENCE SECTION DURING PIPE INSTALLATION. RECONSTRUCT TO ORIGINAL CONDITION OR BETTER AFTER PIPE INSTALLATION IS COMPLETE.
 - 7 ALL PIPE SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.
 - 8 STA. 10+54. IE = 4365.00.
 - 9 EDGE OF GRAVEL.
 - 10 GRAVEL DRIVEWAY.
 - 11 STA. 8+52 AND 11+50, INSTALL PRE-CAST ELECTRICAL & COMMUNICATION VAULTS PER DETAIL 1 PER SHEET C13.
 - 12 STA. 8+52, INSTALL 12"-45' (MJ) BEND & THRUST BLOCK PER DETAIL 1, SHEET C11.

GEOTHERMAL UTILITY CORRIDOR - PLAN STA. 6+00 - 12+00


 HORIZONTAL AND VERTICAL UTILITY LOCATIONS ARE SHOWN FROM BEST AVAILABLE RECORD INFORMATION. CONTRACTOR TO VERIFY LOCATIONS AND DEPTHS. IF LOCATIONS OR DEPTHS CONFLICT WITH DESIGN, COORDINATE WITH THE ENGINEER IMMEDIATELY.






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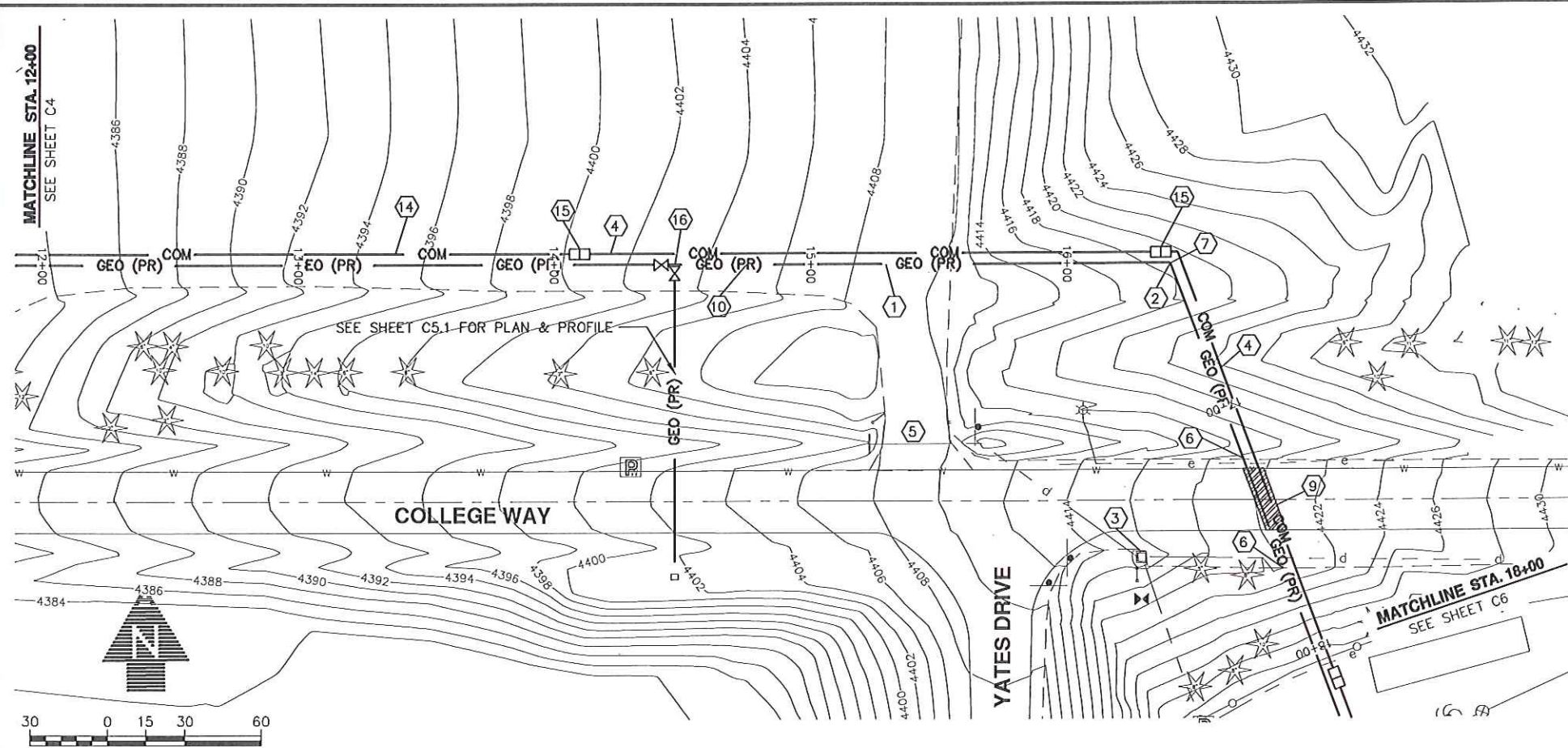
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PROJECT:	1090-27
FILE:	C4.dwg
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SHEET:	C4 OF 22


 REGISTERED PROFESSIONAL ENGINEER
 58062
 JONATHAN M. MORITZ
 OREGON
 JUNE 29, 2009
 EXPIRES 12/31/12

C4

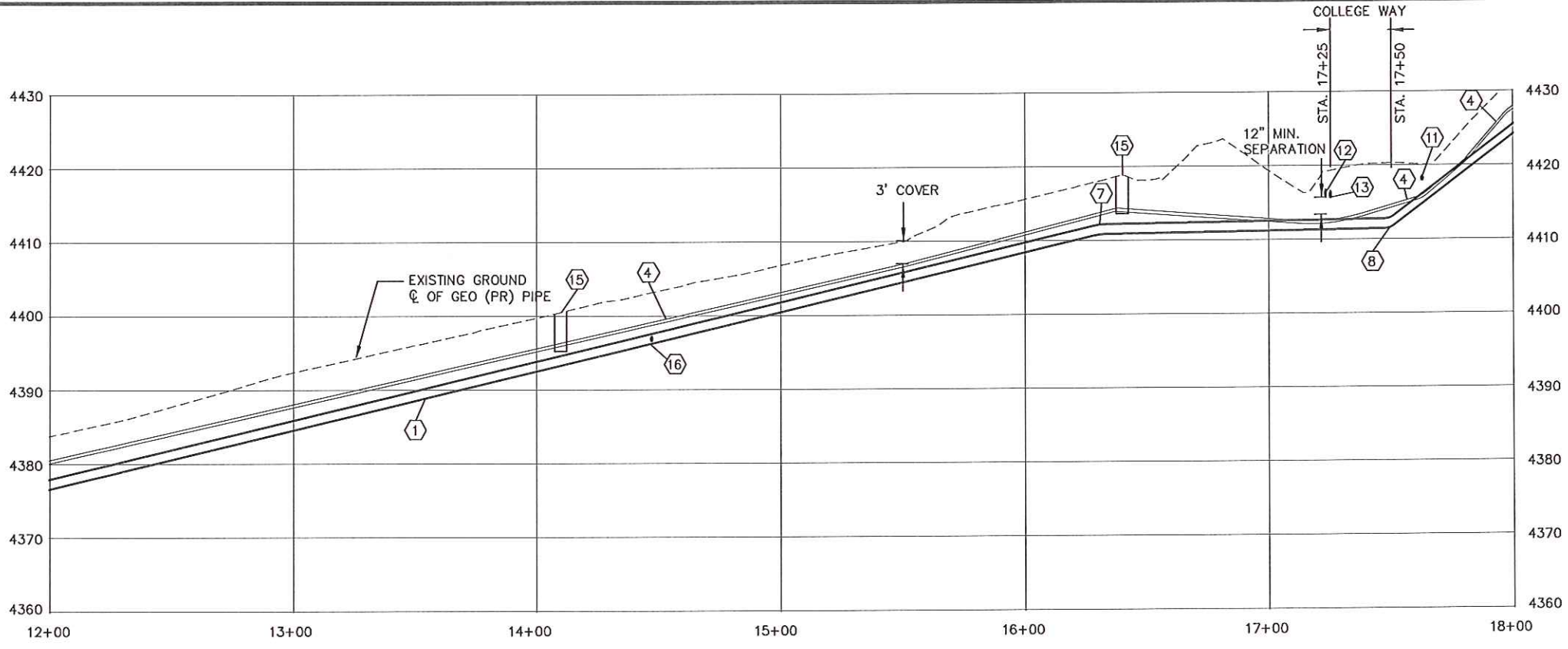


CONSTRUCTION NOTES

- 1 INSTALL 12" NON-INSULATED GEOTHERMAL DUCTILE IRON PIPE WITH 3' MINIMUM COVER PER DETAIL 1, SHEET C14.
- 2 STA. 16+40 INSTALL 12"-45' AND 22.5' BENDS (MJ), MJ ADAPTOR & THRUST BLOCK PER DETAIL 1, SHEET C11.
- 3 EXISTING SD DITCH INLET GRATE ELEV. = 4416.23
18" IE OUT (NW) = 4408.23
6" IE IN (S&E) = 4411.09.
- 4 INSTALL 2-5" SCH. 40 PVC ELECTRICAL CONDUITS & 2-2" SCH. 40 PVC DATA CONDUITS WITH 3' MINIMUM DEPTH UNLESS OTHERWISE SHOWN PER DETAIL 2, SHEET C14.
- 5 USE EXISTING GRAVEL DRIVEWAY TO PARKING AREA AS CONSTRUCTION ENTRANCE.
- 6 RESTORE SHOULDER AREA TO ORIGINAL OR BETTER CONDITION FOLLOWING CONSTRUCTION.
- 7 STA. 16+40. INSTALL HORIZONTAL BEND, DEFLECT DOWN HILL AT 0.0800 FT/FT SLOPE. I.E. = 4412.67.
- 8 STA. 17+49 INSTALL 12"-11.25' VERTICAL BEND (MJ) & THRUST BLOCK PER DETAIL 1, SHEET C11
IE = 4411.52.
- 9 SAWCUT EXISTING PAVEMENT AND REPLACE EXISTING A/C PER TYPICAL TRENCH "T" PATCH DETAIL 1, SHEET C14.
- 10 ALL PIPE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS
- 11 STA. 17+63 APPROXIMATE LOCATION OF 6" STORM DRAIN.
- 12 STA. 17+23 POWER CROSSING.
- 13 STA. 17+25.5 8" WATERLINE CROSSING.
- 14 STA. 11+33 TO 15+55 GRAVEL PARKING LOT. RECONSTRUCT TO ORIGINAL OR BETTER CONDITION AFTER PIPE INSTALLATION.
- 15 STA. 14+10 AND 16+40 INSTALL PRE-CAST ELECTRICAL & COMMUNICATION VAULTS PER DETAIL 1, SHEET C13.
- 16 STA. 14+47. INSTALL CONNECTION ASSEMBLY (SEE SHEET C5.1)

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GEOTHERMAL UTILITY CORRIDOR - PLAN STA. 12+00 - 18+00



GEOTHERMAL UTILITY CORRIDOR - PROFILE STA. 12+00 - 18+00

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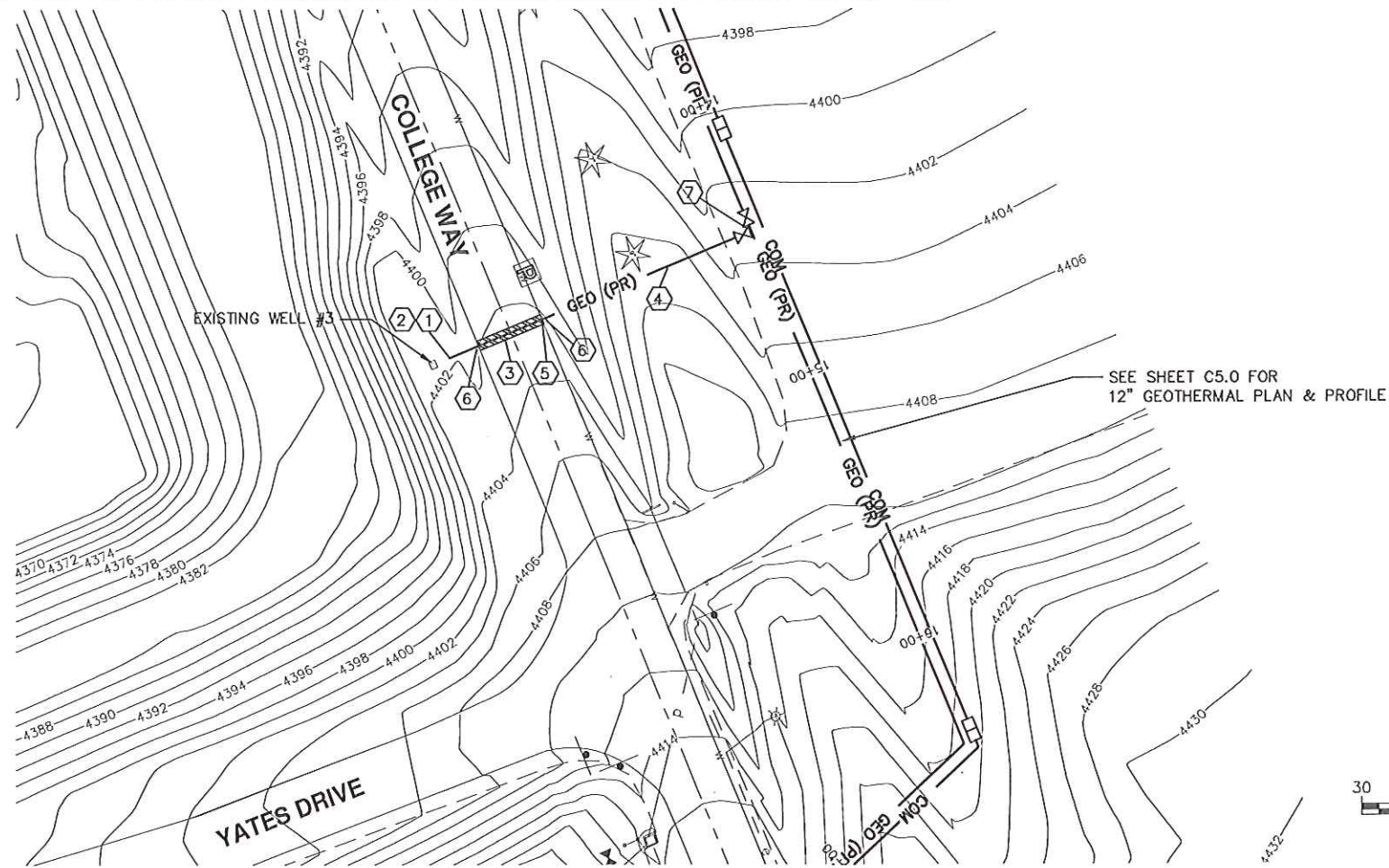
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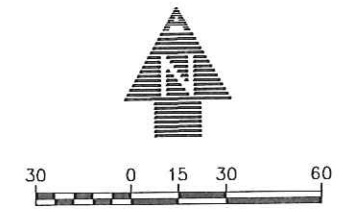


GEOHERMAL UTILITY CORRIDOR - PLAN STA. 0+00 - 1+15

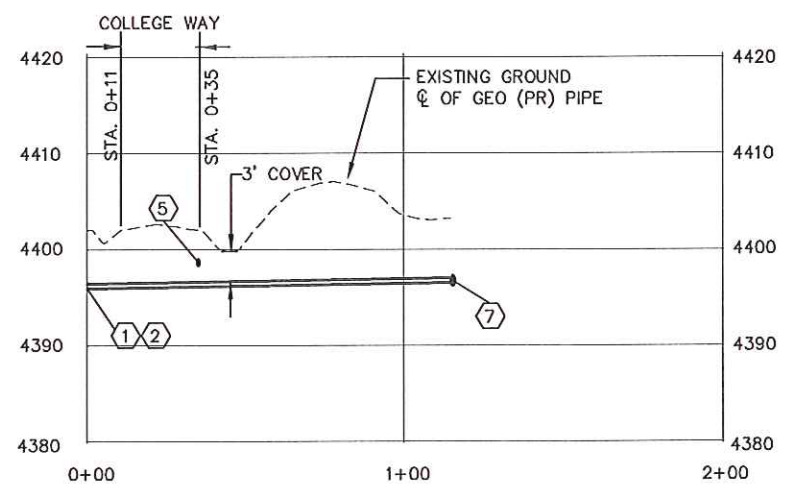
CONSTRUCTION NOTES

- ① INSTALL 6" NON-INSULATED GEOHERMAL DUCTILE IRON PIPE WITH 3' MINIMUM COVER PER DETAIL 1, SHEET C14. TERMINATE 5' FROM EXISTING WELL.
- ② CAP END OF PIPELINE AND MARK WITH 2"x4" 12" ABOVE SURFACE.
- ③ SAWCUT EXISTING PAVEMENT AND REPLACE A/C PER TYPICAL TRENCH "T" PATCH DETAIL 1, SHEET C14.
- ④ ALL PIPE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.
- ⑤ STA. 0+35 WATERLINE CROSSING. MAINTAIN 12" MINIMUM SEPARATION.
- ⑥ RESTORE SHOULDER AREA TO ORIGINAL OR BETTER CONDITION FOLLOWING CONSTRUCTION.
- ⑦ STA. 14+47 = STA. 1+15. INSTALL CONNECTION ASSEMBLY DETAIL 4, SHEET C11.

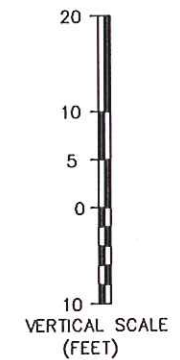
SEE SHEET C5.0 FOR 12" GEOHERMAL PLAN & PROFILE



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GEOHERMAL UTILITY CORRIDOR - PROFILE STA. 0+00 - 1+15



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DATE:	05-01-12
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SCALE:	AS NOTED
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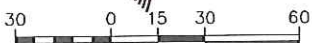
C5.1

CONSTRUCTION NOTES

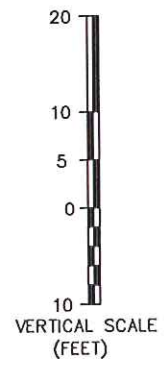
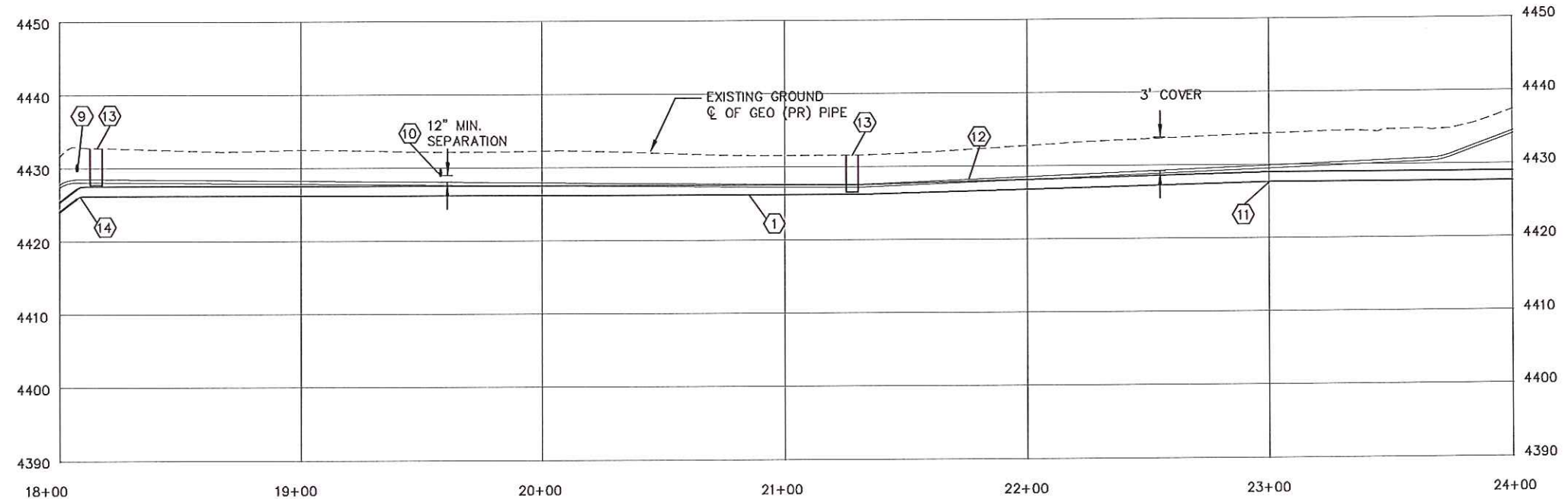
- ① INSTALL 12" NON-INSULATED GEOTHERMAL DUCTILE IRON PIPE WITH 3' MINIMUM COVER PER DETAIL 1, SHEET C14.
- ② STA. 21+28.5 INSTALL 12"-45' BEND (MJ) & THRUST BLOCK PER DETAIL 1, SHEET C11.
- ③ EXISTING FENCE.
- ④ EXISTING BATTING CAGE.
- ⑤ EXISTING SCORE BOARD.
- ⑥ STA. 18+00 TO 23+50, FOLLOWING PIPE INSTALLATION SOFTBALL FIELD TO BE REPLANTED WITH KLAMATH BLEND GRASS SEED. RESTORE TO ORIGINAL OR BETTER CONDITION.
- ⑦ ALL PIPE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.
- ⑧ CONTRACTOR TO TEMPORARILY REMOVE FENCE SECTION DURING THE PIPE INSTALLATION. FOLLOWING PIPE INSTALLATION FENCE SHALL BE RECONSTRUCTED TO EXISTING OR BETTER CONDITION.
- ⑨ STA. 18+07, UNDERGROUND POWER.
- ⑩ STA. 19+57.5, UNDERGROUND POWER.
- ⑪ STA. 21+29 TO 23+00 SLOPE PIPE AT 0.008 FT/FT.
- ⑫ INSTALL 2-5" ELECTRICAL CONDUITS & 2-2" PVC CONDUITS, 3' MINIMUM DEPTH UNLESS OTHERWISE SHOWN PER DETAIL 2, SHEET C15
- ⑬ STA. 18+15 AND 21+28, INSTALL PRE-CAST ELECTRICAL AND COMMUNICATION VAULTS PER DETAILS 1, SHEET C13.
- ⑭ STA. 18+08, INSTALL 12" 11.25' BEND (MJ) & THRUST BLOCK PER DETAIL 1, SHEET C11. IE = 4426.13.
- ⑮ CONSTRUCTION OPERATIONS ARE NOT PERMITTED WITHIN THE BOUNDARIES OF THE SOFTBALL FIELD HOME RUN FENCE.

NOTE:
 4" UNDERGROUND PERFORATED WITH ROCK ENVELOPE AND 1"-4" UNDERGROUND IRRIGATION SYSTEM LOCATED IN THE SOFTBALL FIELD AREA. CONTRACTOR SHALL COORDINATE WITH THE OWNER TO OBTAIN LOCATIONS PRIOR TO EXCAVATION. CONTRACTOR SHALL REPAIR TO ORIGINAL OR BETTER CONDITION IF DAMAGED DURING CONSTRUCTION.

HORIZONTAL AND VERTICAL UTILITY LOCATIONS ARE SHOWN FROM BEST AVAILABLE RECORD INFORMATION. CONTRACTOR TO VERIFY LOCATIONS AND DEPTHS. IF LOCATIONS OR DEPTHS CONFLICT WITH DESIGN, COORDINATE WITH THE ENGINEER IMMEDIATELY.



GEOTHERMAL UTILITY CORRIDOR - PLAN STA. 18+00 - 24+00



GEOTHERMAL UTILITY CORRIDOR - PROFILE STA. 18+00 - 24+00

EXPIRES 12/31/12

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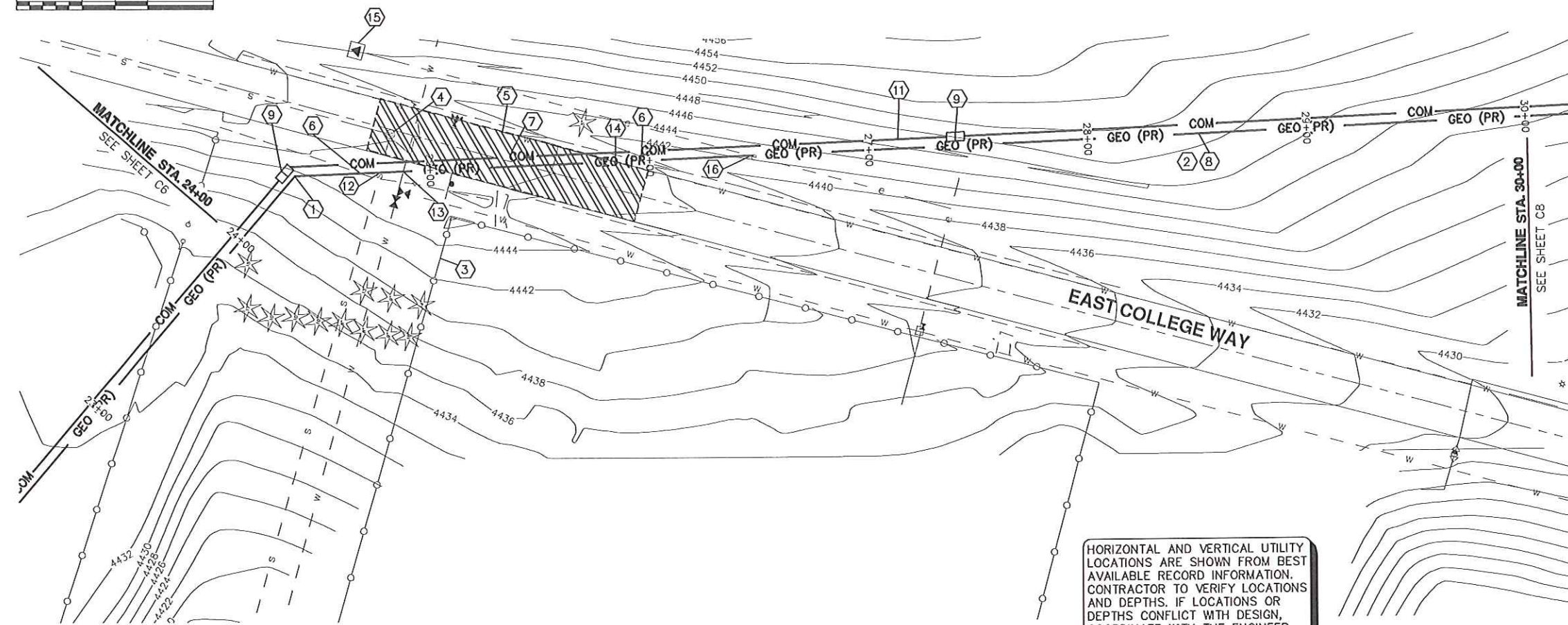
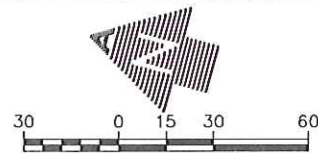
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PLAN & PROFILE STA. 18+00 - 24+00

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DATE:	05-01-12
PROJECT:	1090-27
FILE:	C6.dwg
DESIGNED BY:	JM
DRAWN BY:	SJM
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SURVEYED BY:	ACE
SCALE:	AS NOTED
SHEET:	C6 OF 22

C6

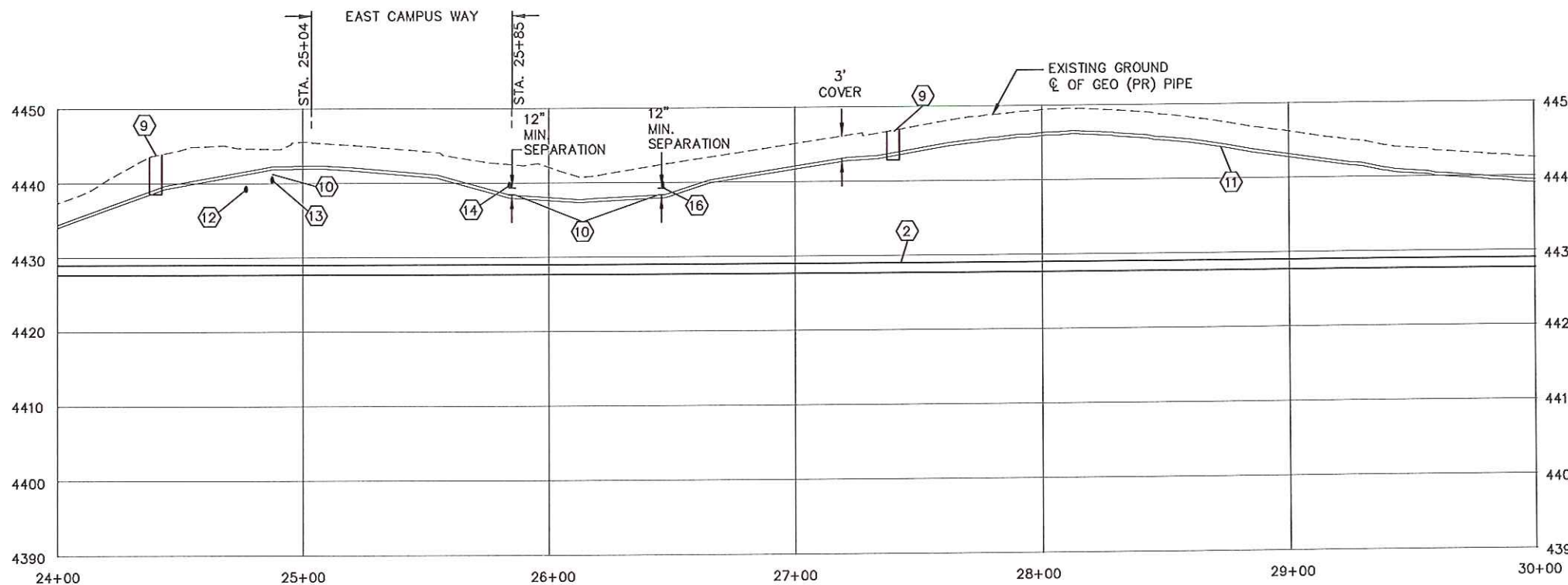


GEOHERMAL UTILITY CORRIDOR - PLAN STA. 24+00 - 30+00

HORIZONTAL AND VERTICAL UTILITY LOCATIONS ARE SHOWN FROM BEST AVAILABLE RECORD INFORMATION. CONTRACTOR TO VERIFY LOCATIONS AND DEPTHS. IF LOCATIONS OR DEPTHS CONFLICT WITH DESIGN, COORDINATE WITH THE ENGINEER IMMEDIATELY.

CONSTRUCTION NOTES

- ① STA. 24+38, INSTALL 12"-45' BEND (M.J) & THRUST BLOCK PER DETAIL 1, SHEET C11.
- ② INSTALL 12" PRE-INSULATED GEOTHERMAL DUCTILE IRON PIPE WITH 3' MINIMUM COVER PER DETAIL 1, SHEET C14.
- ③ EXISTING FENCE AROUND ARBORETUM.
- ④ EXISTING SSMH
RIM = 4446.34
6" IE IN (N) = 4440.69
6" IE OUT (W) = 4440.59
- ⑤ STA. 24+67 TO 26+00, REMOVE EXISTING ASPHALT BY GRINDING AND INSTALL 4" THICK ASPHALT INLAY FOR THE ENTIRE WIDTH OF THE ROADWAY.
- ⑥ RESTORE SHOULDER AREA TO ORIGINAL OR BETTER CONDITION FOLLOWING CONSTRUCTION.
- ⑦ SAWCUT EXISTING PAVEMENT FOR INSTALLATION OF GEOTHERMAL PIPELINE, ELECTRICAL & DATA CONDUITS. CONSTRUCT A/C "T" PATCH PER DETAIL 1, SHEET C14.
- ⑧ ALL PIPE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.
- ⑨ STA. 24+40 AND 27+40, INSTALL PRE-CAST ELECTRICAL & COMMUNICATION VAULTS PER DETAIL 1, SHEET C13.
- ⑩ TRANSITION CONDUIT TO OBTAIN 12" MINIMUM SEPARATION FROM EXISTING UTILITY CROSSING.
- ⑪ INSTALL 2-5" ELECTRICAL CONDUITS & 2-2" PVC DATA CONDUITS WITH 3' MINIMUM COVER UNLESS OTHERWISE SHOWN PER DETAIL 2, SHEET 14.
- ⑫ STA. 24+76.7, 8" SANITARY SEWER CROSSING.
- ⑬ STA. 24+87.5, 8" WATERLINE CROSSING.
- ⑭ STA. 25+84, 8" WATERLINE CROSSING.
- ⑮ ELECTRIC PAD (INACTIVE) PER OIT BASE DRAWING. CONTRACTOR TO VERIFY LOCATION OF INACTIVE BURIED ELECTRICAL LINE.
- ⑯ STA. 26+46, APPROXIMATE LOCATION OF ABANDONED UNDERGROUND POWER



GEOHERMAL UTILITY CORRIDOR - PROFILE STA. 24+00 - 30+00

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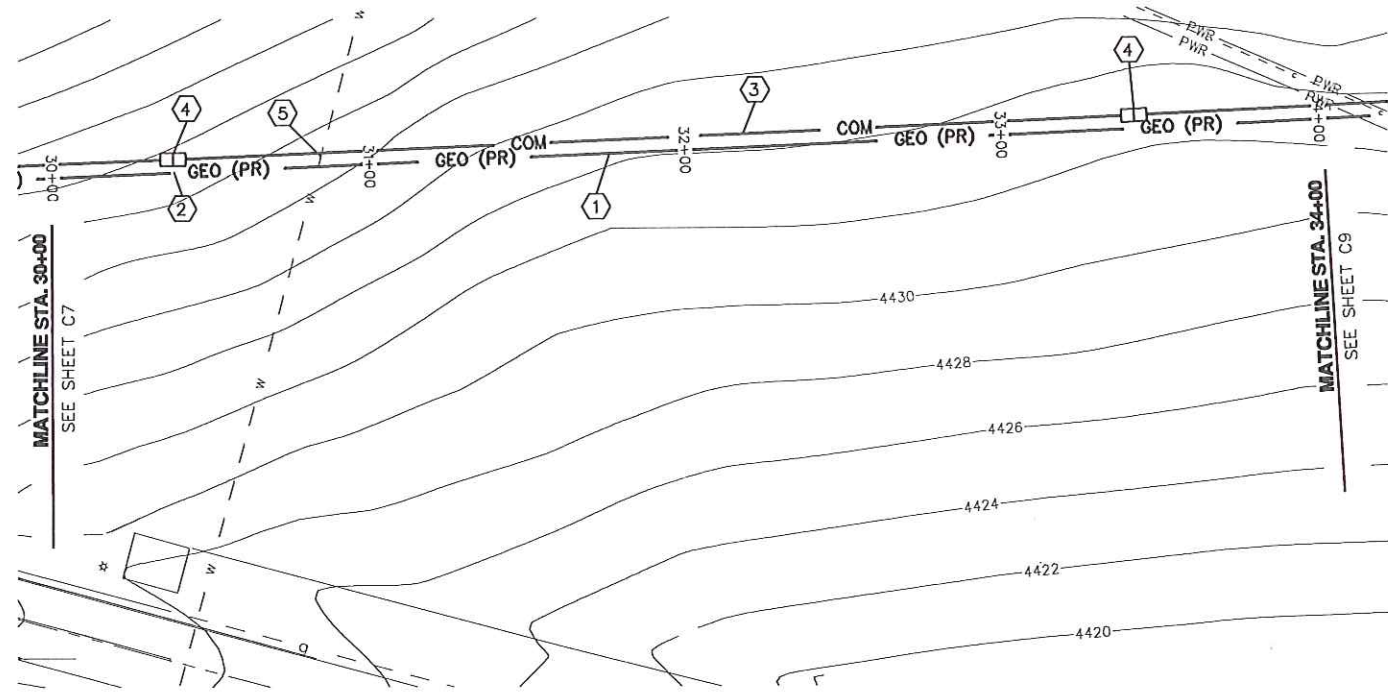
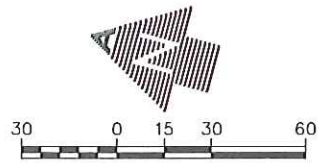
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PROJECT:	1090-27
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SHEET:	C7 OF 22



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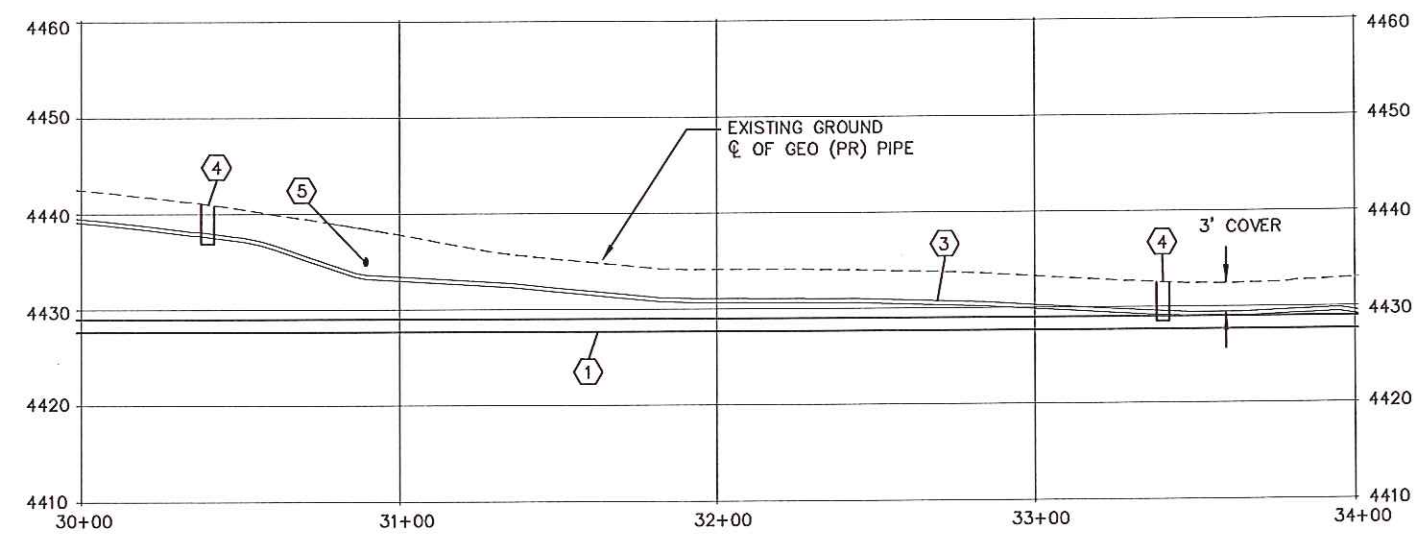
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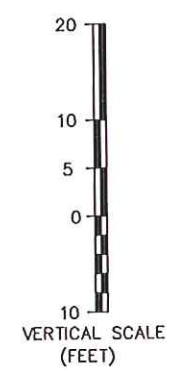
GEO THERMAL UTILITY CORRIDOR - PLAN STA. 30+00 - 34+00

- CONSTRUCTION NOTES**
- ① INSTALL 12" NON-INSULATED GEOTHERMAL DUCTILE IRON PIPE WITH 3' MINIMUM COVER PER DETAIL 1, SHEET C14.
 - ② ALL PIPE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.
 - ③ INSTALL 2-5" ELECTRICAL CONDUITS & 2-2" PVC DATA CONDUITS WITH 3' MINIMUM COVER PER DETAIL 2, SHEET C14, UNLESS OTHERWISE SHOWN.
 - ④ STA. 30+40 AND 33+40, INSTALL PRE-CAST ELECTRICAL AND COMMUNICATION VAULTS PER DETAIL 1, SHEET C13.
 - ⑤ STA. 30+85, WATERLINE CROSSING. TRANSITION CONDUITS TO OBTAIN 12" MINIMUM SEPARATION.

HORIZONTAL AND VERTICAL UTILITY LOCATIONS ARE SHOWN FROM BEST AVAILABLE RECORD INFORMATION. CONTRACTOR TO VERIFY LOCATIONS AND DEPTHS. IF LOCATIONS OR DEPTHS CONFLICT WITH DESIGN, COORDINATE WITH THE ENGINEER IMMEDIATELY.



GEO THERMAL UTILITY CORRIDOR - PROFILE STA. 30+00 - 34+00



EXPIRES 12/31/12

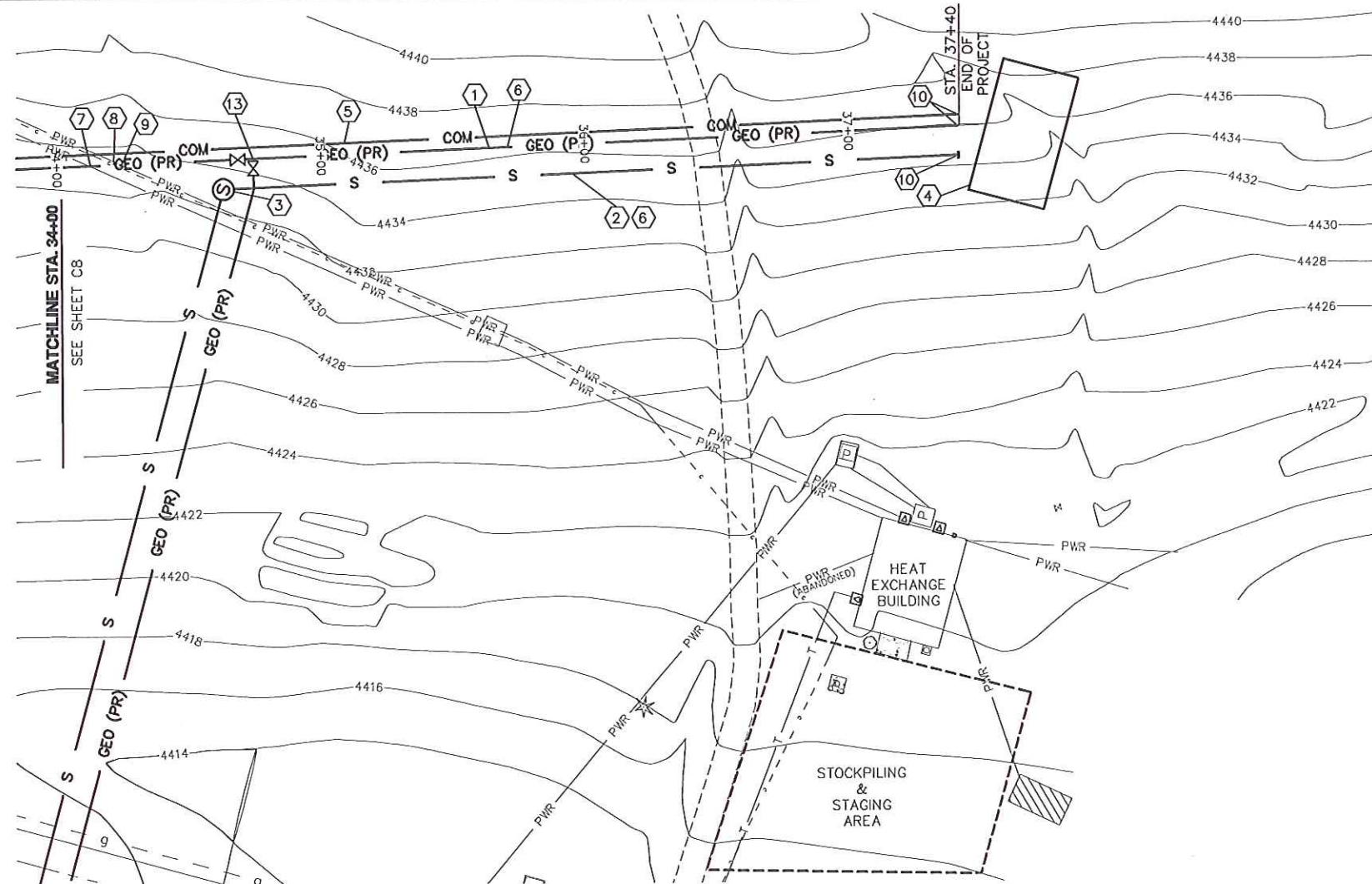
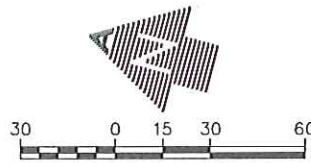
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SHEET:	C8 OF 22

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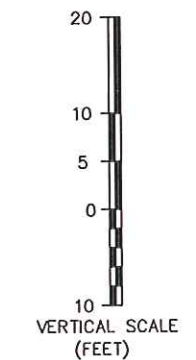
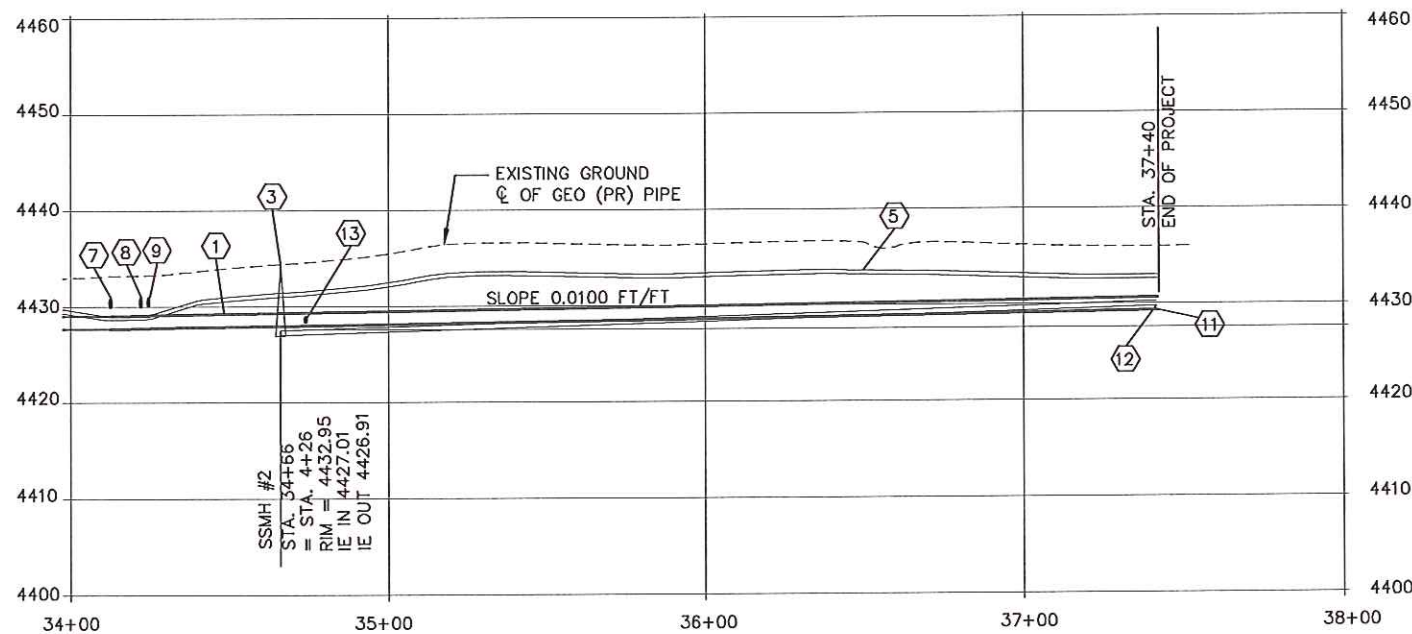


CONSTRUCTION NOTES

- ① INSTALL 12" NON-INSULATED GEOTHERMAL DUCTILE IRON PIPE WITH 3' MINIMUM COVER PER DETAIL 1, SHEET 14.
- ② INSTALL 6" ASTM D3034 SDR 35 SANITARY SEWER PER DETAIL 3, SHEET C14.
- ③ SSMH #2. SEE SHEET C10 FOR CONTINUATION.
- ④ FUTURE POWER FACILITY (BY OTHERS).
- ⑤ INSTALL 2-5" SCH. 40 ELECTRICAL CONDUITS & 2-2" SCH. 40 DATA CONDUITS WITH 3' MINIMUM DEPTH UNLESS OTHERWISE SHOWN PER DETAIL 2, SHEET 14.
- ⑥ ALL PIPE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.
- ⑦ STA. 34+13, APPROXIMATE LOCATION OF UNDERGROUND POWER LINE. MAINTAIN 12" MINIMUM CLEARANCE.
- ⑧ STA. 34+22, APPROXIMATE LOCATION OF UNDERGROUND COMMUNICATION LINE. MAINTAIN 12" MINIMUM CLEARANCE.
- ⑨ STA. 34+25, APPROXIMATE LOCATION OF UNDERGROUND POWER LINE. MAINTAIN 12" MINIMUM CLEARANCE.
- ⑩ CAP ENDS OF ALL PIPELINES AND MARK WITH 2"x4" 12" ABOVE SURFACE.
- ⑪ STA. 37+40, IE = 4429.31.
- ⑫ STA. 37+40, 6" SANITARY SEWER PIPE IE = 4429.73.
- ⑬ STA. 34+74. INSTALL CONNECTION ASSEMBLY DETAIL 5. SHEET C11.

HORIZONTAL AND VERTICAL UTILITY LOCATIONS ARE SHOWN FROM BEST AVAILABLE RECORD INFORMATION. CONTRACTOR TO VERIFY LOCATIONS AND DEPTHS. IF LOCATIONS OR DEPTHS CONFLICT WITH DESIGN, COORDINATE WITH THE ENGINEER IMMEDIATELY.

GEOTHERMAL UTILITY CORRIDOR - PLAN STA. 34+00 - 37+40



GEOTHERMAL UTILITY CORRIDOR - PROFILE STA. 34+00 - 37+40

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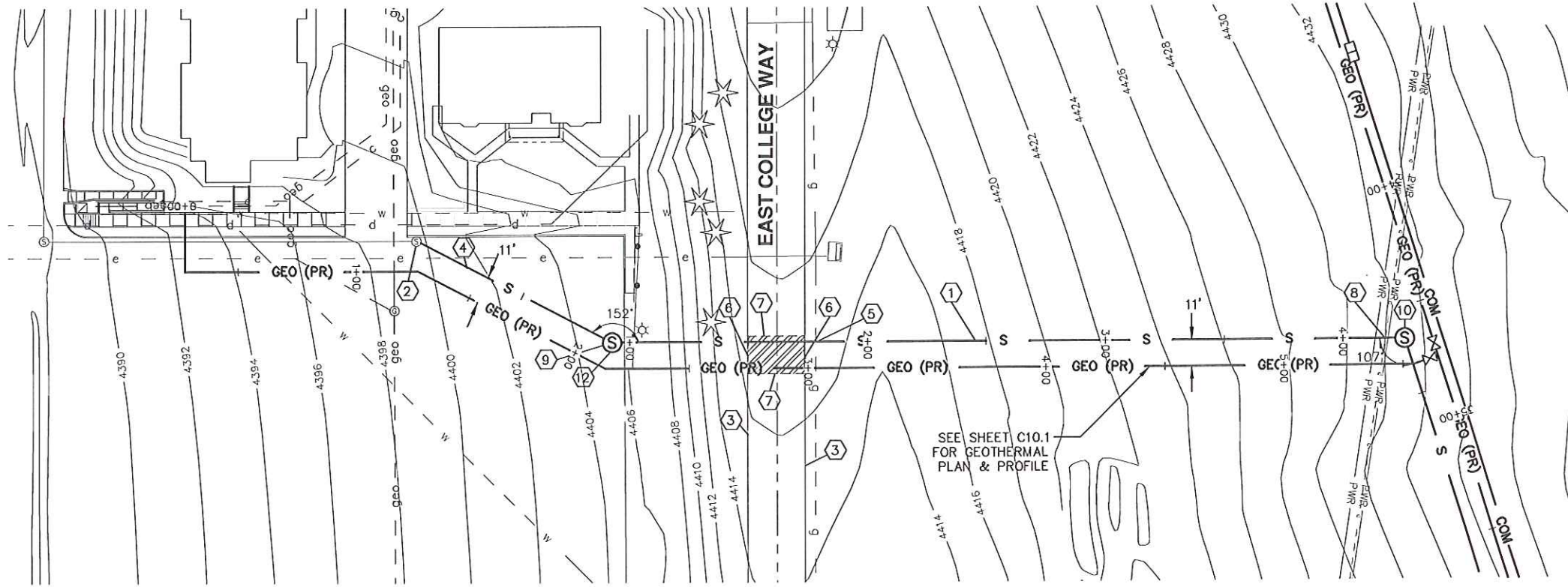
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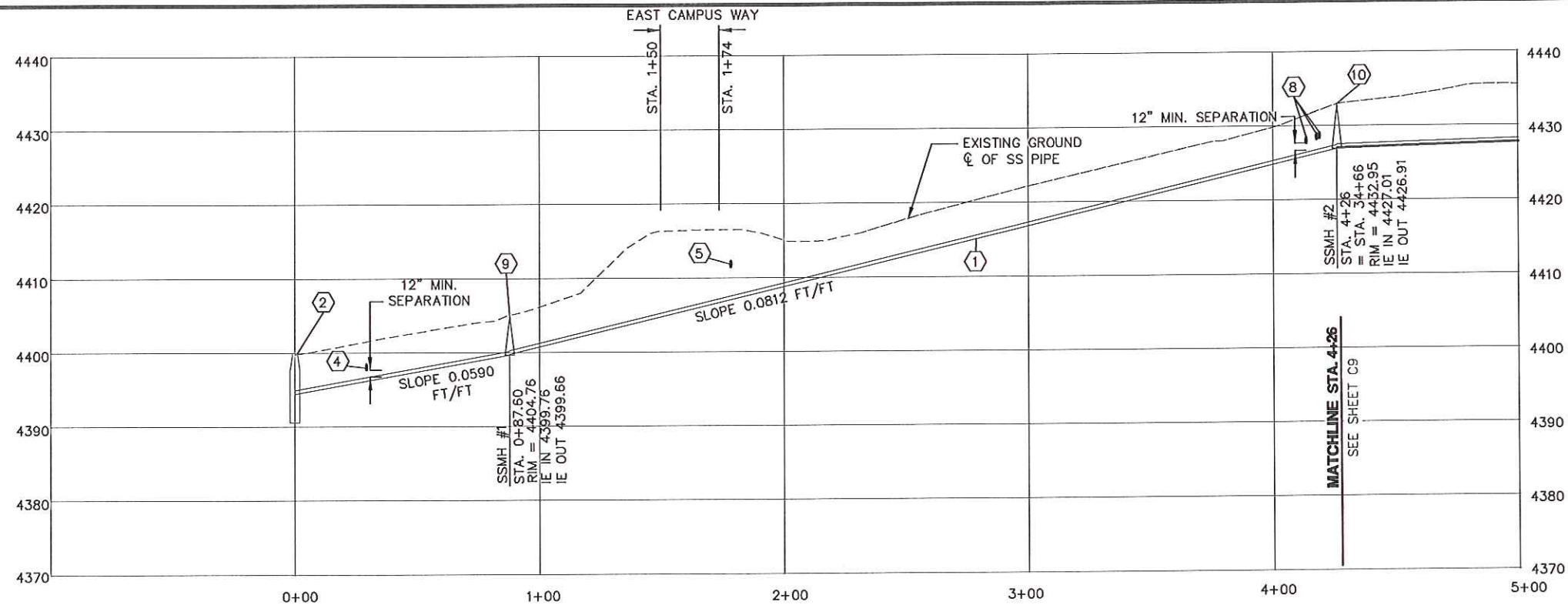
EXPIRES 12/31/12



- CONSTRUCTION NOTES**
- 1 INSTALL 6" ASTM D3034, SDR 35 SANITARY SEWER LINE. PER DETAIL 3, SHEET C14.
 - 2 STA. 0+00, CONNECT TO EXISTING SSMH. CORE DRILL MANHOLE TO 1" TO 2" LARGER THAN THE O.D. OF THE PIPE TO BE INSERTED. RETROFIT MANHOLE PER DETAIL 3, SHEET C12. SEAL AROUND PIPE WITH NON-SHRINK GROUT. JACKHAMMERS SHALL NOT BE USED.
RIM = 4400.00
6" IE IN (N) = 4391.45
6" IE IN (S) = 4391.45
6" IE OUT (W) = 4391.25
6" IE IN (TOP OF DROP) = 4394.43
6" IE IN (BOTTOM OF DROP) = 4391.92
 - 3 EXISTING EDGE OF PAVEMENT.
 - 4 STA. 0+29. APPROXIMATE LOCATION OF POWER CROSSING.
 - 5 STA. 1+79. APPROXIMATE LOCATION OF EXISTING GAS LINE.
 - 6 RESTORE SHOULDER TO ORIGINAL OR BETTER CONDITION FOLLOWING CONSTRUCTION.
 - 7 STA. 1+50 TO 1+74 SAWCUT EXISTING PAVEMENT 12" BEYOND EDGE OF TRENCH PER TYPICAL TRENCH "T" PATCH DETAIL 1, SHEET C14. REMOVE EXISTING ASPHALT BY GRINDING & INSTALL 4" THICK INLAY FOR THE ENTIRE WIDTH OF THE ROADWAY.
 - 8 STA. 4+13 TO 4+19. APPROXIMATE LOCATION OF POWER & COMMUNICATIONS CROSSING.
 - 9 INSTALL SSMH#1 PER DETAILS 1 & 2, SHEET C12.
 - 10 INSTALL SSMH#2 PER DETAIL 1 & 2, SHEET C12.

SANITARY SEWER PLAN STA. 0+00 - 5+00

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SANITARY SEWER PROFILE STA. 0+00 - 5+00



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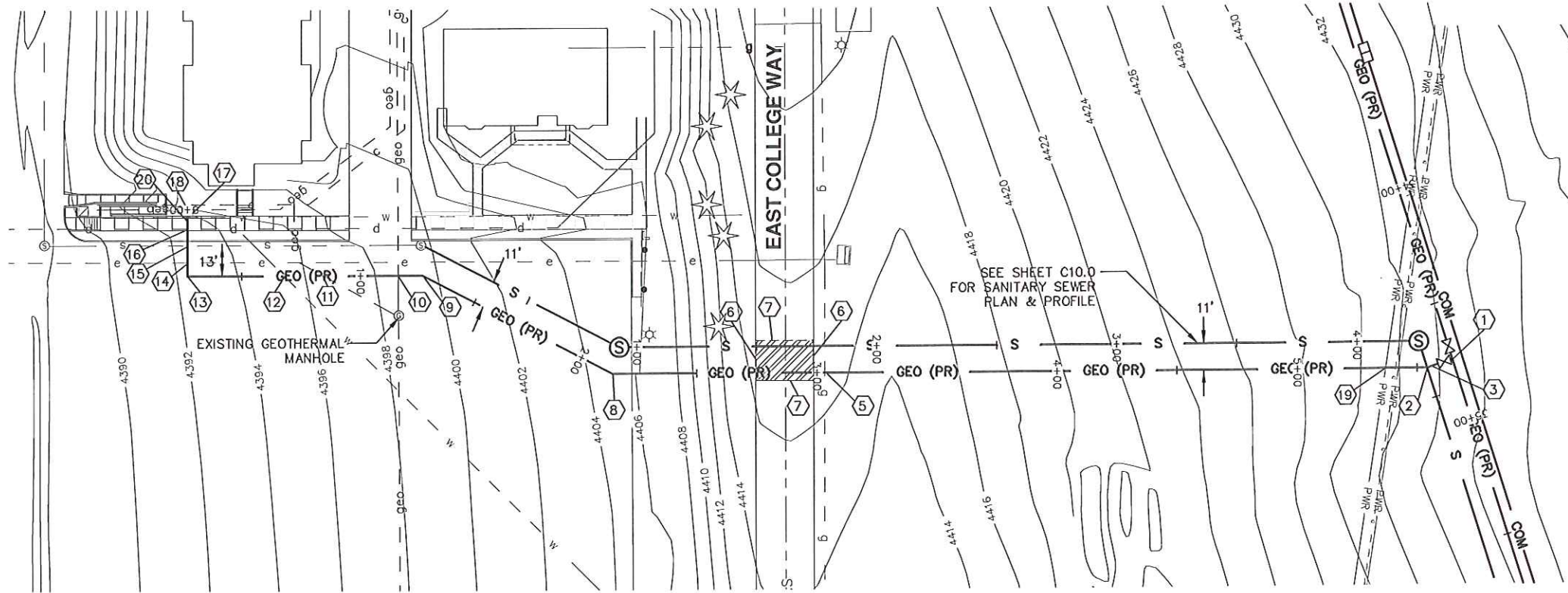
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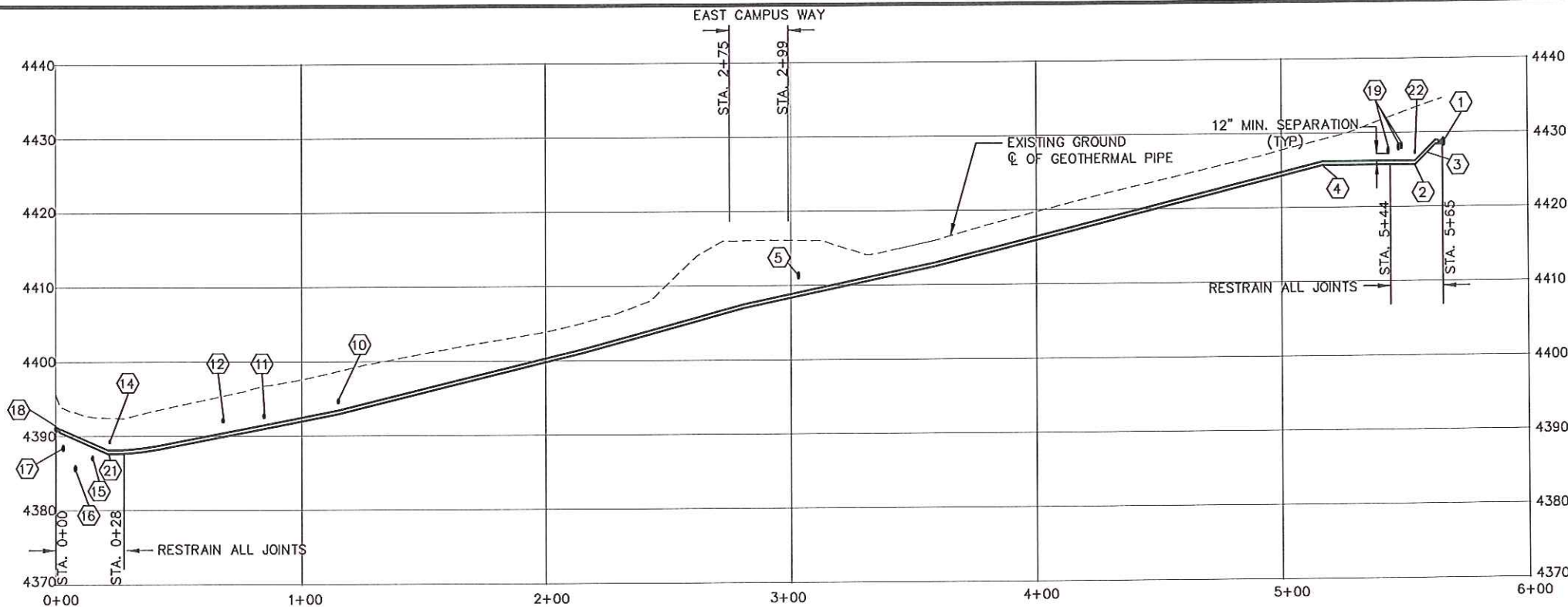
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HORIZONTAL AND VERTICAL UTILITY LOCATIONS ARE SHOWN FROM BEST AVAILABLE RECORD INFORMATION. CONTRACTOR TO VERIFY LOCATIONS AND DEPTHS. IF LOCATIONS OR DEPTHS CONFLICT WITH DESIGN, COORDINATE WITH THE ENGINEER IMMEDIATELY.

GEOHERMAL UTILITY CORRIDOR - PLAN STA. 0+00 - 5+65



GEOHERMAL UTILITY CORRIDOR - PROFILE STA. 0+00 - 5+65

- CONSTRUCTION NOTES**
- 1 STA. 5+65 = STA. 34+74. INSTALL CONNECTION ASSEMBLY DETAIL 5, SHEET C11.
 - 2 STA. 5+54 INSTALL HORIZONTAL 6"-22 1/2' BEND (MJ) & VERTICAL 6"-45' BEND (MJ) WITH MJ ADAPTOR.
 - 3 RESTRAIN ALL JOINTS BETWEEN STA. 5+44 TO STA. 5+65.
 - 4 STA. 5+16. INSTALL VERTICAL 11 1/4' BEND (MJ) & THRUST BLOCK PER DETAIL 1, SHEET C11.
 - 5 STA. 3+03. APPROXIMATE LOCATION OF EXISTING GAS LINE.
 - 6 RESTORE SHOULDER TO ORIGINAL OR BETTER CONDITION FOLLOWING CONSTRUCTION.
 - 7 STA. 2+75 TO 2+99. SAWCUT EXISTING PAVEMENT 12" BEYOND EDGE OF TRENCH PER TYPICAL TRENCH "T" PATCH DETAIL 1, SHEET C14. REMOVE EXISTING ASPHALT BY GRINDING AND INSTALL 4" THICK INLAY FOR THE ENTIRE WIDTH OF THE ROADWAY.
 - 8 STA. 2+15. INSTALL 6" 22 1/2' BEND (MJ) & THRUST BLOCK PER DETAIL 1, SHEET C11.
 - 9 STA. 1+26. INSTALL 6" 22 1/2' BEND (MJ) & THRUST BLOCK PER DETAIL 1, SHEET C11.
 - 10 STA. 1+16. APPROXIMATE LOCATION OF GEOTHERMAL PIPE CROSSING.
 - 11 STA. 0+85. APPROXIMATE LOCATION OF GEOTHERMAL PIPE CROSSING.
 - 12 STA. 0+68. APPROXIMATE LOCATION OF WATER LINE CROSSING.
 - 13 STA. 0+28. INSTALL 6" 90° BEND (MJ) & THRUST BLOCK PER DETAIL 1, SHEET C11.
 - 14 STA. 0+22. APPROXIMATE LOCATION OF POWER CROSSING.
 - 15 STA. 0+15. APPROXIMATE LOCATION OF 6" SEWER PIPE CROSSING.
 - 16 STA. 0+08. APPROXIMATE LOCATION OF 10" STORM PIPE CROSSING.
 - 17 STA. 0+03. APPROXIMATE LOCATION OF 8" WATER PIPE CROSSING.
 - 18 STA. 0+00. CONNECT TO EXISTING 6" GEOTHERMAL PIPE PER DETAIL 6, SHEET C11.
 - 19 STA. 5+36 TO 5+43 APPROXIMATE LOCATION OF POWER AND COMMUNICATIONS CROSSING.
 - 20 EXISTING SIDEWALK SHALL NOT BE REMOVED OR DISTURBED. NEW 6" GEOTHERMAL PIPE TO BE TUNNELED UNDER SIDEWALK AND BACKFILLED WITH SLURRY.
 - 21 STA. 0+22. INSTALL VERTICAL 22 1/2' BEND (MJ).
 - 22 STA. 5+54. 6" SEWER PIPE CROSSING.

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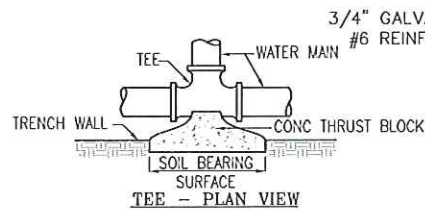
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SCALE: AS NOTED
SHEET: C10.1 OF 22



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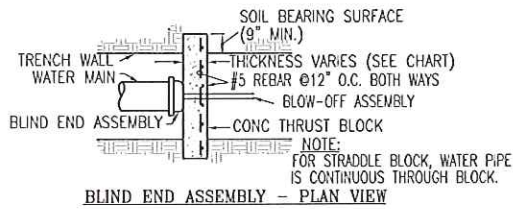
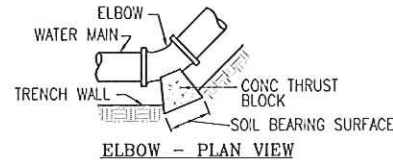
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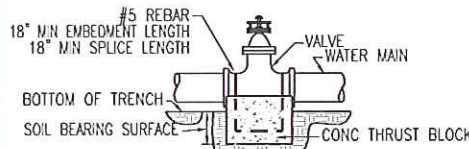
3/4" GALVANIZED RODS OR EPOXY COATED #6 REINFORCEMENT BAR, AASHTO M284-18" MIN. EMBEDMENT EACH END



ELBOW - ELEVATION VIEW



BLIND END ASSEMBLY - PLAN VIEW



VALVE - ELEVATION VIEW

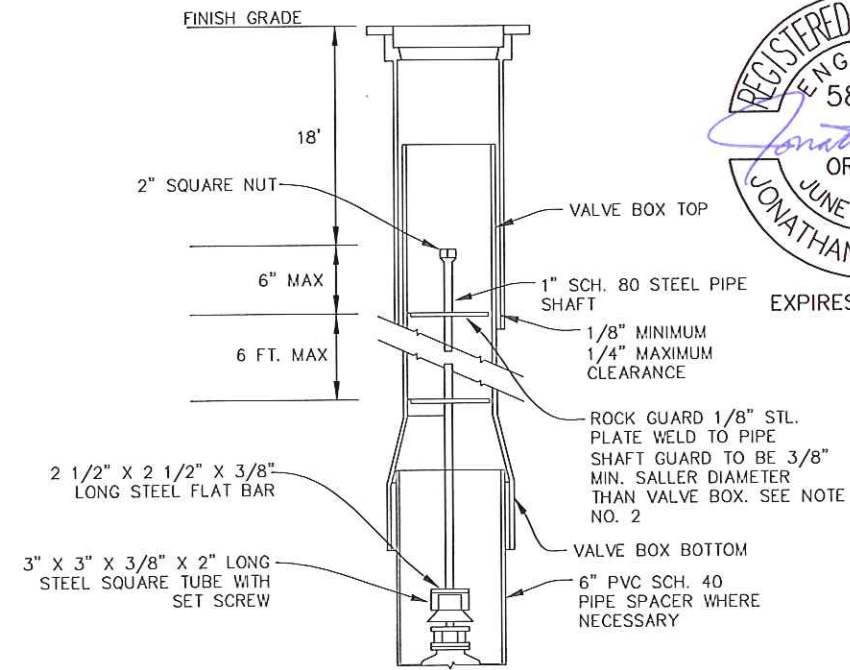
CONSTRUCTION NOTES

1. CONCRETE SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS.
2. CONCRETE SHALL BE PLACED AGAINST UNDISTURBED SOIL.
3. CONCRETE SHALL NOT BE PLACED AROUND BOLTS OR BELLS.
4. INSTALL APPROVED ISOLATION MATERIAL BETWEEN PIPE AND/OR FITTINGS BEFORE POURING CONCRETE.
5. SOME FORM WORK MAY BE REQUIRED, AS DETERMINED BY THE ENGINEER, FOR PROPER BEARING, SHAPE AND/OR CONTAINMENT.
6. CONCRETE MIX SHALL BE STIFF, 3" TO 4" SLUMP.
7. FORMWORK SHALL NOT BE LEFT IN TRENCH AFTER CONCRETE HAS SET OR AFTER BACKFILL.
8. UTILITIES CROSSING A THRUST BLOCK REQUIRE A MINIMUM OF ONE-FOOT CLEARANCE.

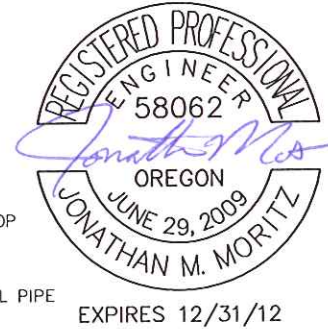
THRUST BLOCK SCHEDULE		REQUIRED SOIL BEARING AREA (SF)				
PIPE SIZE	MAXIMUM SOIL BEARING CAP. (1000 LB/SF) BLIND END	ELBOWS				
		OR TEE OR VALVE	90°	45°	45°	22 1/2°
6"	10	1	1	1	1	1
	4	2	3	2	1	1
	2	4	7	4	2	2
	1	9	13	8	4	4
12"	10	3	5	3	1	1
	4	9	12	7	3	3
	2	17	25	13	7	7
	1	35	50	27	14	14

SOIL DESCRIPTION	10	HARD, SOUND SHALE	NOTE:
4		SAND AND GRAVEL, CEMENTED WITH CLAY - HARD TO PICK	CHART BASED ON 225 PSI PRES
2		SAND AND MEDIUM CLAY, CAN BE SPADED	
1		SOFT CLAY	

BLOCK THICKNESS			
SIZE OF MAIN	THICKNESS OF BLOCK	SIZE OF MAIN	THICKNESS OF BLOCK
6"	18"	12"-14"	30"

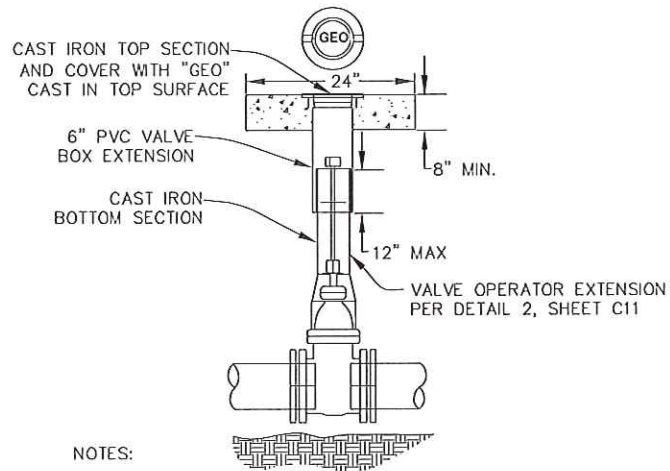


- NOTES:
1. EXTEND 2" NUT TO WIDTH OF 16" OF FINISH GRADE WHEN VALVE NUT IS DEEPER THAN 3 FEET FROM FINISHED GRADE.
 2. WHERE DEPTH IS OVER 6 FEET, A SECOND PLATE SHALL BE INSTALLED EQUALLY BETWEEN ROCK GUARD AND 2" VALVE NUT.



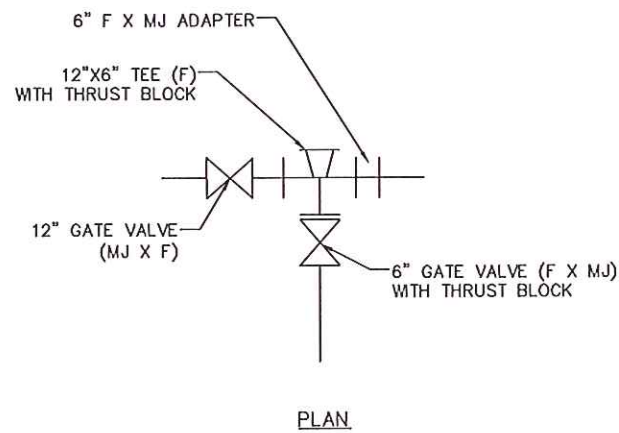
1 STANDARD THRUST BLOCKS
C11 N.T.S.

2 VALVE OPERATOR EXTENSION
C11 N.T.S.

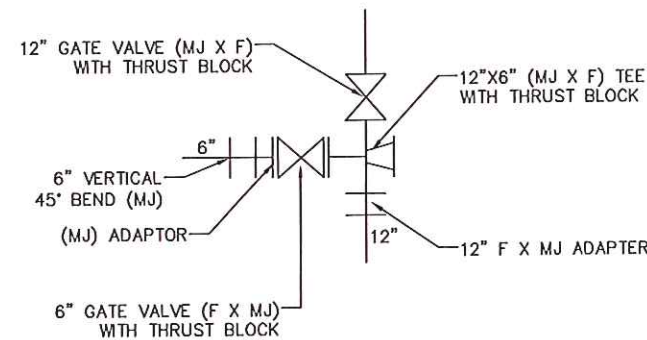


- NOTES:
1. VALVE BOX NOT TO REST ON OPERATING ASSEMBLY.
 2. OPERATOR EXTENSION REQUIRED WHEN VALVE NUT DEEPER THAN 3 FEET FROM FINISHED GRADE.
 3. CENTER VALVE BOX ON AXIS OF OPERATING NUT.
 4. PROVIDE 24" SQUARE BY 8" THICK CONCRETE PAD AROUND VALVE BOX OUTSIDE OF PAVED AREAS.
 5. VALVE BOX COVER SHALL BE A MINIMUM OF 4 1/2" IN LENGTH.

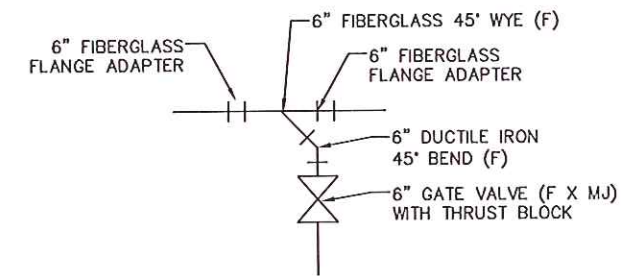
3 GEOTHERMAL GATE VALVE DETAIL
C11 N.T.S.



4 CONNECTION ASSEMBLY DETAIL
C11 N.T.S. (STA. 1+15)



5 CONNECTION ASSEMBLY DETAIL
C11 N.T.S. (STA. 5+65)



- NOTES:
1. RESTRAIN ALL JOINTS FROM STA. 0+00 TO 0+28.
 2. FIBERGLASS PIPE AND FITTINGS ARE SMITH FIBERCAST GREEN THREAD AS MANUFACTURED BY FIBER GLASS SYSTEMS.

6 CONNECTION ASSEMBLY DETAIL
C11 N.T.S. (STA. 0+00)

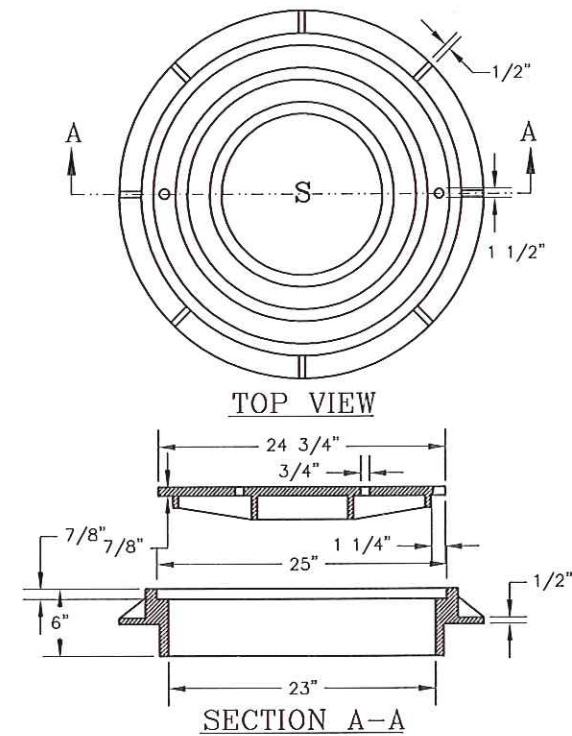
No.	REVISION	DATE	BY

2011 GEOTHERMAL UTILITY CORRIDOR
FOR
OREGON INSTITUTE OF TECHNOLOGY
KLAMATH FALLS, OREGON
THRUST BLOCK & VALVE DETAILS

ADKINS CONSULTING ENGINEERS, INC.
SINCE 1993
Engineers Planners Surveyors
2950 Shonto Way · Klamath Falls, Oregon 97603 · (541) 884-4666 · FAX (541) 884-5335
Klamath Falls, OR · Medford, OR · Alturas, CA
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DATE:	05-01-12
PROJECT:	1090-27
FILE:	C11.dwg
DESIGNED BY:	JM
DRAWN BY:	SJM
CHECKED BY:	JM
SURVEYED BY:	EP
SCALE:	AS NOTED
SHEET:	C11 OF 22

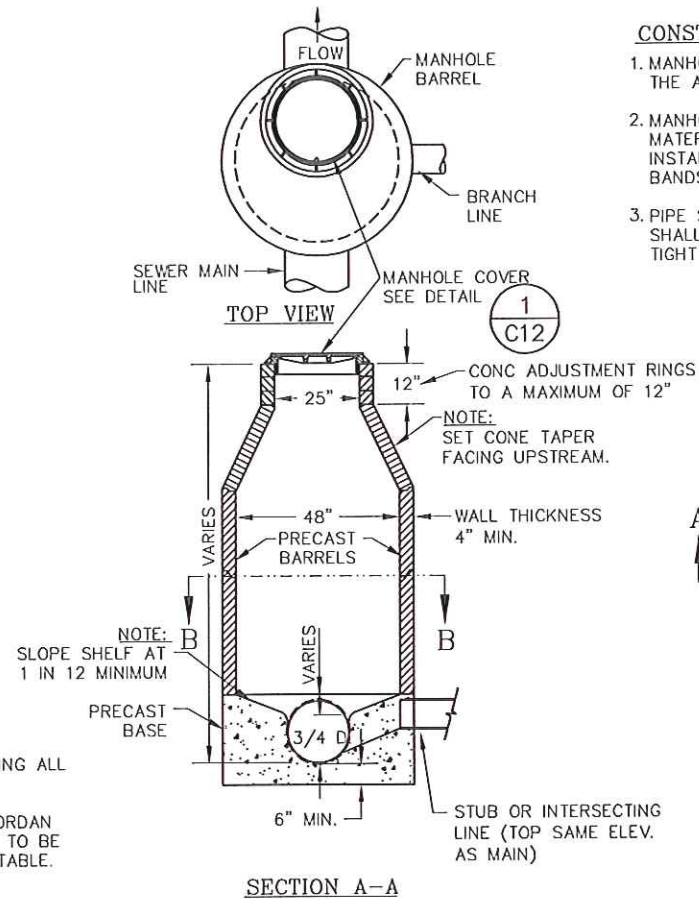
C11



NOTES:

1. RING AND COVER TO BE MACHINED TO A TRUE 25" AND A TRUE BEARING ALL AROUND.
2. CASTINGS TO BE: D&L FOUNDRY AND SUPPLY MODEL A-2107, EAST JORDAN IRONWORKS CATALOG #2603B5 OR APPROVED EQUAL. MANHOLE COVER TO BE BAS-RELIEF CASTING, PAINTINGS AND COATINGS SHALL NOT BE ACCEPTABLE.
3. MINIMUM TOTAL WEIGHT OF RING AND COVER IS 275 LBS.

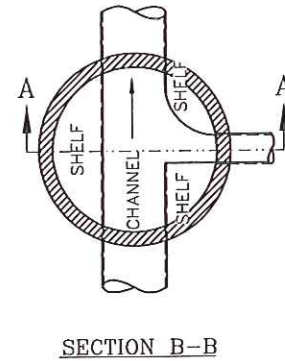
1 STANDARD MANHOLE FRAME & COVER
C12 N.T.S.



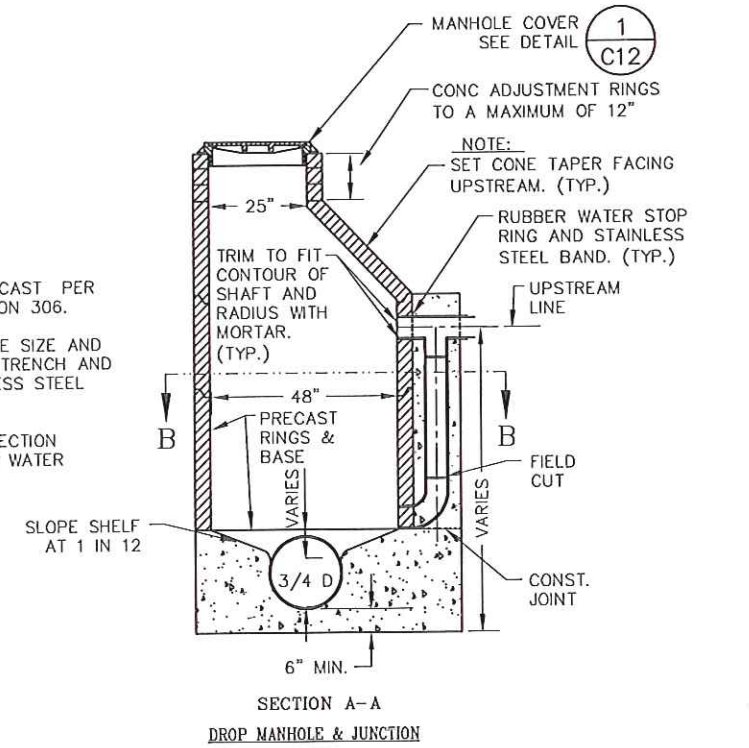
2 STANDARD MANHOLE
C12 N.T.S.

CONSTRUCTION NOTES:

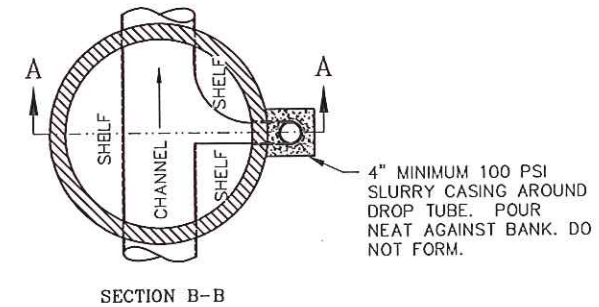
1. MANHOLE RINGS AND BASE SHALL BE PRECAST PER THE APPLICABLE SECTION OF APWA, DIVISION 306.
2. MANHOLE COUPLINGS ARE TO BE THE SAME SIZE AND MATERIAL AS THE PIPE IN THE ADJACENT TRENCH AND INSTALLED WITH WATER STOP AND STAINLESS STEEL BANDS AT THE TIME OF FABRICATION.
3. PIPE STUBOUTS FOR FUTURE SEWER CONNECTION SHALL BE SEALED WITH THE APPROPRIATE WATER TIGHT PLUG.



SECTION B-B



SECTION A-A
DROP MANHOLE & JUNCTION



SECTION B-B

CONSTRUCTION NOTES:

1. MANHOLE RINGS AND BASE SHALL BE PRECAST.
2. MANHOLE COUPLINGS ARE TO BE THE SAME SIZE AND MATERIAL AS THE PIPE IN THE ADJACENT TRENCH AND INSTALLED WITH WATER STOP AND STAINLESS STEEL BANDS AT THE TIME OF FABRICATION.
3. PIPE STUBOUTS FOR FUTURE SEWER CONNECTION SHALL BE SEALED WITH THE APPROPRIATE WATER TIGHT PLUG.

3 DROP MANHOLE
C12



EXPIRES 12/31/12

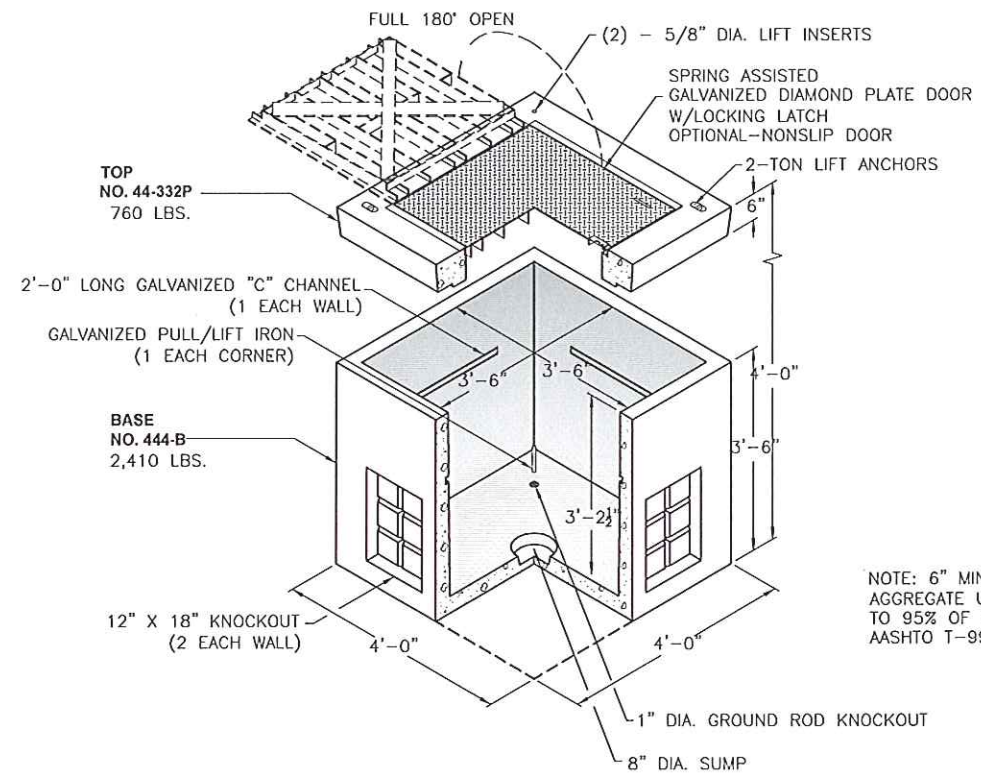
No.	REVISION	DATE	BY

2011 GEOTHERMAL UTILITY CORRIDOR
FOR
OREGON INSTITUTE OF TECHNOLOGY
KLAMATH FALLS, OREGON
SANITARY SEWER DETAILS

ADKINS
SINCE 1963
CONSULTING ENGINEERS, INC.
Engineers Planners Surveyors
2950 Shasta Way · Klamath Falls, Oregon 97603 · (541) 864-4666 · FAX (541) 864-5335
Klamath Falls, OR · Medford, OR · Astoria, OR
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CHECKED BY:	JM
SURVEYED BY:	EP
SCALE:	AS NOTED
SHEET:	12 OF 22

C12



NOTE: 6" MIN. OF 3/4"-0" CRUSHED AGGREGATE UNDER VAULT COMPACTED TO 95% OF MAX. DENSITY PER AASHTO T-99

1 ELECTRICAL PAD AND COMMUNICATION VAULT
 C13 N.T.S.



EXPIRES 12/31/12

No.	REVISION	DATE	BY

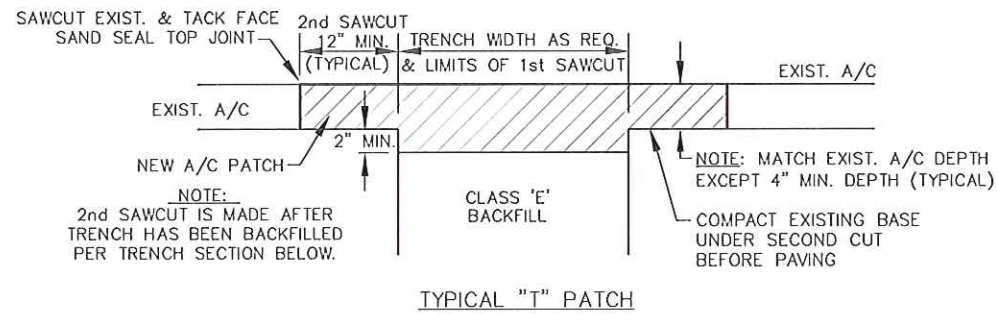
2011 GEOTHERMAL UTILITY CORRIDOR
 FOR
 OREGON INSTITUTE OF TECHNOLOGY
 KLAMATH FALLS, OREGON
 ELECTRICAL PAD DETAILS

ADKINS SINCE 1983
 CONSULTING ENGINEERS, INC.
 2950 Sherata Way · Klamath Falls, Oregon 97603 · (541) 884-4666 · FAX (541) 884-5335
 Klamath Falls, OR · Medford, OR · Atlanta, GA

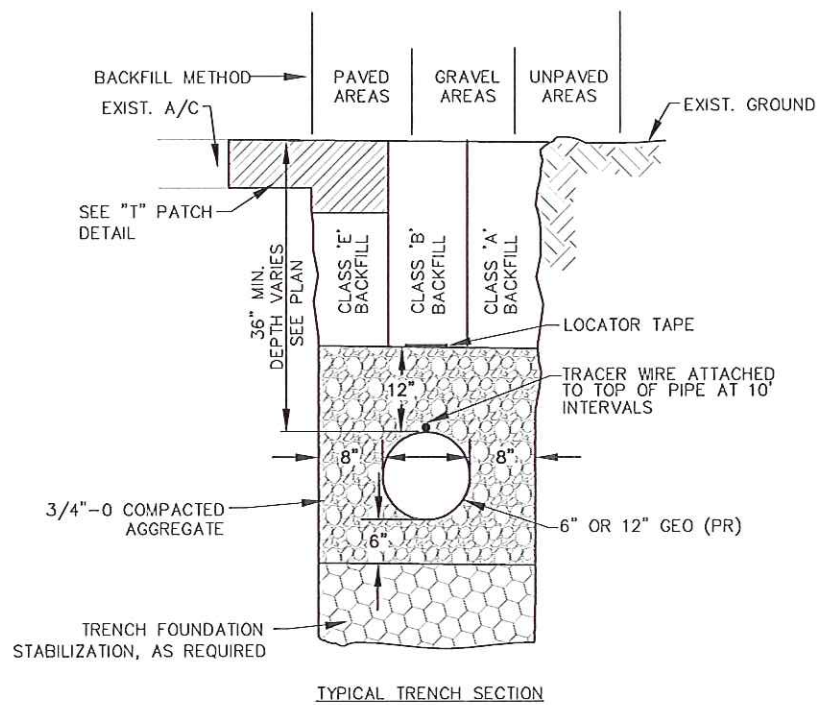
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DATE:	05-01-12
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FILE:	C13.dwg
DESIGNED BY:	JM
DRAWN BY:	SJM
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SCALE:	AS NOTED
SHEET:	C13 OF 22

C13

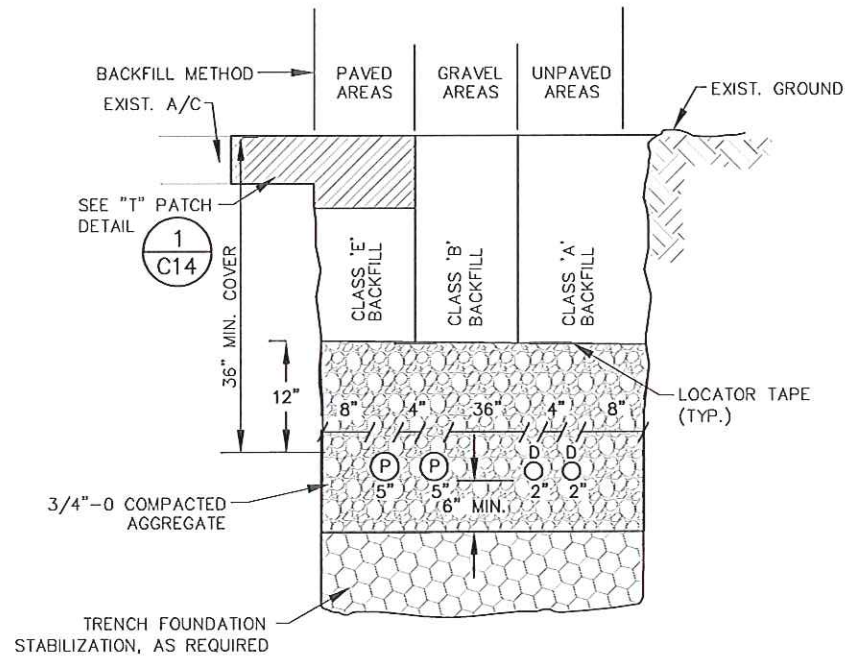


TYPICAL "T" PATCH



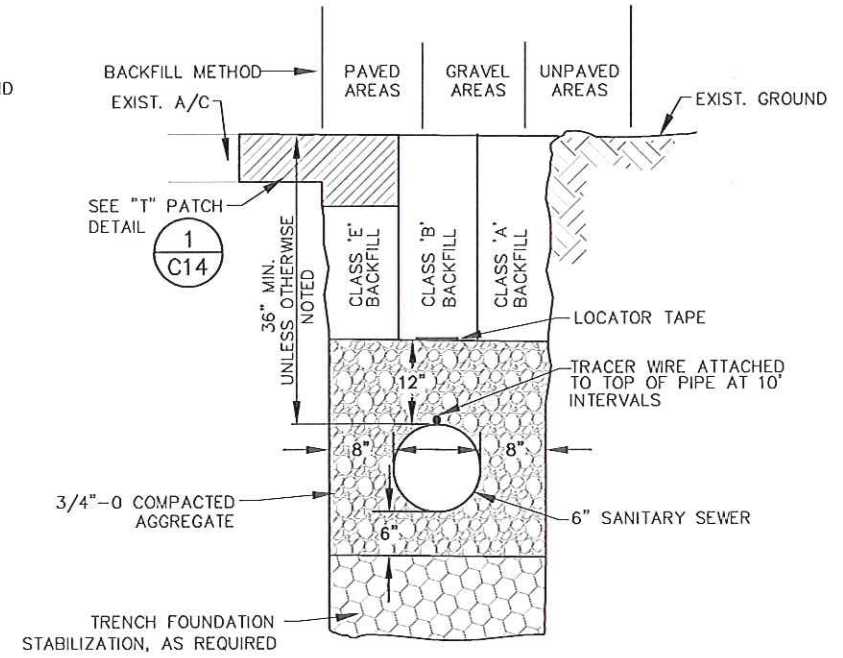
TYPICAL TRENCH SECTION

LEGEND
GEO (PR) - NON-INSULATED GEOTHERMAL PIPE (PRIMARY RETURN)



TYPICAL TRENCH SECTION

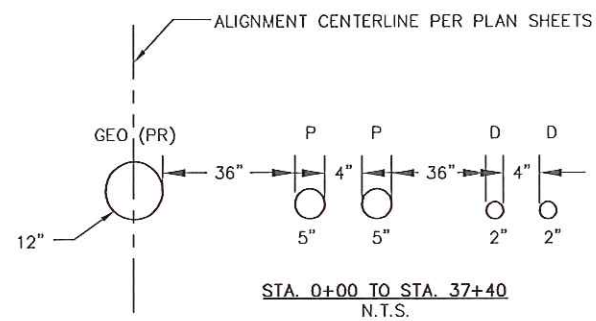
LEGEND
P - POWER CONDUIT
D - DATA CONDUIT



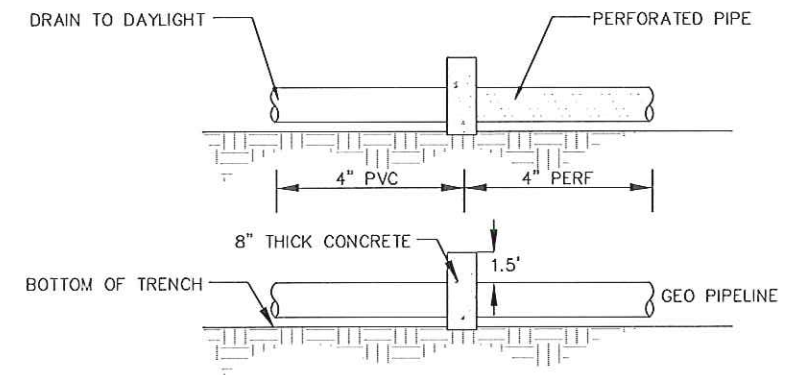
TYPICAL TRENCH SECTION

2 ELECTRICAL AND DATA CONDUIT TRENCH DETAIL
C14 N.T.S.

3 SEWER TRENCH DETAIL
C14 N.T.S.



4 UTILITY CORRIDOR PIPE & CONDUIT SPACING
C14 N.T.S.



NOTE: AS DETERMINED BY ENGINEER DURING CONSTRUCTION

5 CONCRETE WATER DAM
C14 N.T.S.

1 GEOTHERMAL TRENCH DETAIL
C14 N.T.S.



EXPIRES 12/31/12

NO.	REVISION	DATE	BY

2011 GEOTHERMAL UTILITY CORRIDOR
FOR
OREGON INSTITUTE OF TECHNOLOGY
KLAMATH FALLS, OREGON
TRENCH DETAILS

ADKINS CONSULTING ENGINEERS, INC.
SINCE 1983
Engineers, Planners, Surveyors
2950 Shearwater Way - Klamath Falls, Oregon 97603 - (541) 884-6686 - FAX (541) 884-5335
Klamath Falls, OR - Medford, OR - Astoria, OR
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DATE: 05-01-12
PROJECT: 1090-27
FILE: C15.dwg
DESIGNED BY: JM
DRAWN BY: SJM
CHECKED BY: JM
SURVEYED BY: EP
SCALE: AS NOTED
SHEET: 14 OF 22

C14

EROSION AND SEDIMENT CONTROL PLAN

THE PERMITEE IS REQUIRED TO MEET ALL THE CONDITIONS OF THE 1200-C PERMIT.
THIS PLAN AND GENERAL CONDITIONS HAVE BEEN DEVELOPED TO FACILITATE
COMPLIANCE WITH THE 1200C PERMIT REQUIREMENTS. IN CASE OF DISCREPANCIES
OR OMISSIONS, THE 1200C PERMIT REQUIREMENTS SUPERCEDE REQUIREMENTS OF THIS PLAN.

PROJECT OWNER

OREGON INSTITUTE OF TECHNOLOGY
3201 CAMPUS DRIVE
KLAMATH FALLS, OREGON 97601
(541) 885-1600

PROJECT ENGINEER & SURVEYOR

ADKINS CONSULTING ENGINEERS, INC.
2950 SHASTA WAY
KLAMATH FALLS, OR 97603
PHONE: (541) 884-4666
FAX: (541) 884-5335

PROJECT SITE LOCATION

OREGON INSTITUTE OF TECHNOLOGY CAMPUS.
PROJECT BEGINS AT THE SOUTHEAST END OF
CAMPUS DRIVE AND EXTENDS NORTHWESTERLY
TO AN EXISTING GEOTHERMAL WELL NORTH OF
COLLEGE WAY.

ATTENTION EXCAVATORS

OREGON LAW REQUIRES YOU TO FOLLOW RULES
ADOPTED BY THE OREGON UTILITY NOTIFICATION
CENTER. THOSE RULES ARE SET FORTH IN OAR
952-001-0010 THROUGH OAR 952-001-0090. YOU
MAY OBTAIN COPIES OF THESE RULES FROM THE
CENTER BY CALLING 503-232-1987. IF YOU HAVE
ANY QUESTIONS ABOUT THE RULES, YOU MAY
CONTACT THE CENTER. YOU MUST NOTIFY THE
CENTER AT LEAST TWO BUSINESS DAYS, BEFORE
COMMENCING AN EXCAVATION. CALL 503-246-6699.

PERMITEE'S SITE INSPECTOR

NAME: MONTY ROBINSON
COMPANY/AGENCY: ADKINS CONSULTING ENGINEERS, INC.
PHONE: (541) 884-4666
FAX: (541) 884-5335
E-MAIL: MONTY@ADKINSENGINEERING.COM
DESCRIPTION OF EXPERIENCE:

OBTAINED AN ENVIRONMENTAL ENGINEERING DEGREE AT
THE UNIVERSITY OF FLORIDA IN 1995. HAS WORKED ON
NUMEROUS SUBDIVISION DESIGNS AND HAS PRODUCED
EROSION CONTROL PLANS FOR STATE AGENCIES IN
FLORIDA, TEXAS, AND OREGON. HAS PREPARED MANY
ESCP'S FOR DEQ AND HAS FOLLOWED THROUGH ON
INSPECTIONS.

INSPECTION FREQUENCY

- ONCE PER WEEK ON ACTIVE SITES.
- ONCE EVERY TWO WEEKS ON INACTIVE SITES.
- WITHIN 24 HOURS OF A 0.5" RAIN EVENT.
- DAILY WHEN STORMWATER RUNOFF IS OCCURRING.

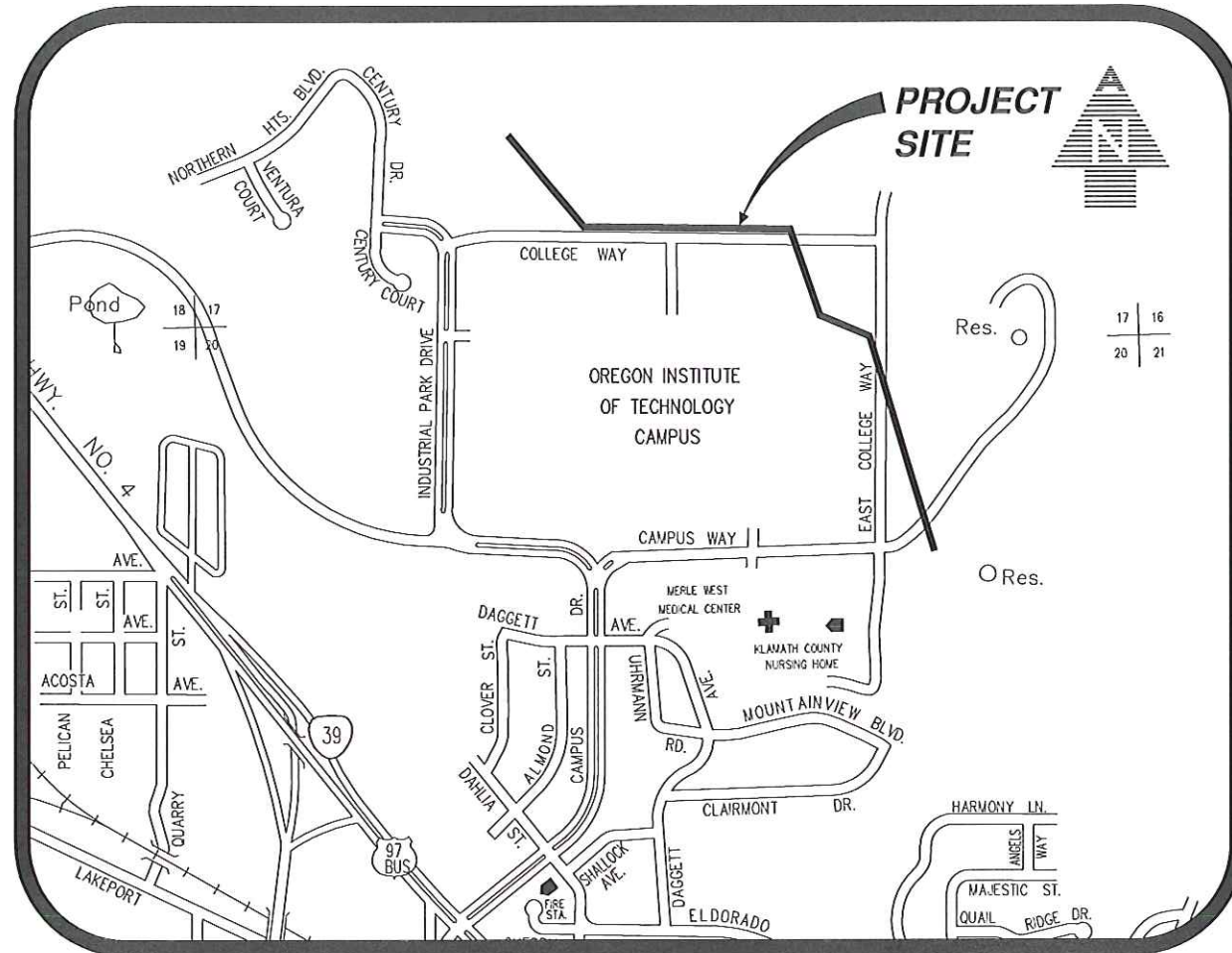
HOLD A PRE-CON MEETING OF PROJECT CONSTRUCTION PERSONNEL
THAT INCLUDES THE EC INSPECTOR. ALL INSPECTIONS MUST BE
MADE IN ACCORDANCE WITH DEQ 1200-C PERMIT REQUIREMENTS.

INSPECTION LOGS MUST BE KEPT IN ACCORDANCE WITH
DEQ'S 1200-C PERMIT REQUIREMENTS.

CHANGES TO THE APPROVED ESC PLAN MUST BE SUBMITTED
TO DEQ IN THE FORM OF AN ACTION PLAN.

ESTIMATED TIMETABLE FOR CONSTRUCTION ACTIVITIES

- * MOBILIZATION----- JUNE 2012
- * CLEARING & EXCAVATING----- JUNE 2012
- * UTILITY INSTALLATION----- JUNE 2012 TO AUGUST 2012
- * FINAL STABILIZATION----- SEPTEMBER 2012



VICINITY MAP
N.T.S.

SITE CONSTRUCTION PERMIT SET

CITY ENGINEERING DIVISION

NARRATIVE DESCRIPTIONS

EXISTING SITE CONDITIONS

RANGELAND GRASSES AND HEAVY UNDERBRUSH WITH SLOPES THAT RANGE
FROM FLAT TO 18%. A PORTION OF THE PROPOSED LINE GOES UNDER
EXISTING CAMPUS ROADS AND ACROSS AN EXISTING SOFT BALL FIELD.

DEVELOPED CONDITIONS

AFTER THE GEOTHERMAL CORRIDOR & INJECTION WELL IS CONSTRUCTED AND
BACKFILLED ACCORDING TO THE DESIGN PLANS, THE AREA IS TO BE
RETURNED TO ITS ORIGINAL SITE CONDITION UNLESS OTHERWISE NOTED ON
THE DESIGN PLANS.

NATURE OF CONSTRUCTION ACTIVITIES

- * CLEARING & EXCAVATING
- * TRENCHING FOR PROPOSED GEOTHERMAL CORRIDOR
- * BACKFILLING OF GEOTHERMAL CORRIDOR TRENCH
- * FINAL GRADING & STABILIZATION

APPROXIMATE DISTURBED AREA = 9± ACRES

SITE SOIL CLASSIFICATIONS

17B - DETER CLAY LOAM, 2 TO 7 PERCENT SLOPES, WELL DRAINED SOIL ON
TERRACES, FORMED IN CLAYEY SEDIMENT WEATHERED FROM TUFF, DIATOMITE,
& BASALT WITH A SOIL CAPABILITY SUBCLASS Iie. PERMEABILITY IS SLOW,
RUNOFF IS MEDIUM, AND THE HAZARD OF EROSION IS MODERATE.

49C - LORELLA LOAM, 2 TO 15 PERCENT SLOPES, WELL DRAINED SOIL ON
ROCK BENCHES, FORMED IN VERY COBBLY AND GRAVELLY MATERIAL
WEATHERED MAINLY FROM TUFF AND BASALT WITH A SOIL CAPABILITY
SUBCLASS Iie. PERMEABILITY IS SLOW, RUNOFF IS RAPID, AND THE HAZARD
OF EROSION IS HIGH.

RECEIVING WATER BODY

ALL RUNOFF IS CURRENTLY COLLECTED IN THE OREGON INSTITUTE OF
TECHNOLOGY STORM SYSTEM EVENTUALLY WORKING ITS WAY TO THE UPPER
KLAMATH LAKE APPROXIMATELY A MILE AWAY. NOTE THAT NO IMPERVIOUS
CONSTRUCTION WILL BE TAKING PLACE AND THAT THE FINAL CONDITION WILL
EQUAL THE PRE-DEVELOPMENT CONDITION WITH NO ADDITIONAL STORMWATER
RUNOFF BEING PRODUCED.

RATIONALE STATEMENT

"A COMPREHENSIVE LIST OF AVAILABLE BEST MANAGEMENT PRACTICES (BMP)
OPTIONS BASED ON DEQ'S 1200-C PERMIT APPLICATION AND ESCP
GUIDANCE DOCUMENT HAS BEEN REVIEWED TO COMPLETE THIS EROSION AND
SEDIMENT CONTROL PLAN. SOME OF THE BMP'S LISTED IN THE MATRIX TABLE
WERE NOT CHOSEN BECAUSE THEY WERE DETERMINED TO NOT EFFECTIVELY
MANAGE EROSION PREVENTION AND SEDIMENT CONTROL FOR THIS PROJECT
BASED ON SPECIFIC SITE CONDITIONS, INCLUDING SOIL CONDITIONS,
TOPOGRAPHIC CONSTRAINTS, ACCESSIBILITY TO THE SITE, AND OTHER
RELATED CONDITIONS. AS THE PROJECT PROGRESSES AND THERE IS A NEED
TO REVISE THE ESCP, AN ACTION PLAN WILL BE SUBMITTED."

ABBREVIATIONS

BMP BEST MANAGEMENT PRACTICES
DEQ DEPARTMENT OF ENVIRONMENTAL QUALITY
EC EROSION CONTROL
ESC EROSION & SEDIMENT CONTROL
ESCP EROSION & SEDIMENT CONTROL PLAN

EROSION & SEDIMENT CONTROL PLAN SHEET INDEX

SHEET C15 - COVER & SHEET INDEX
SHEET C15.1 - GENERAL ESC NOTES
SHEET C15.2 - ESC NOTES & BMP MATRIX
SHEET C15.3 - SITE PLAN
SHEET C15.4 - BMP DETAILS
SHEET C15.5 - SITE PLAN

MISCELLANEOUS NOTES

1. PRIOR TO BEGINNING THE PROJECT, THE CONTRACTOR SHALL INSPECT THE ENTIRE
SITE FOR EVIDENCE OF ILICIT CONNECTIONS OR ILLEGAL DUMPING OR DISCHARGES.
ANY ITEMS FOUND SHALL BE REPORTED TO THE ESC INSPECTOR.
2. PRIOR TO CONNECTING TO THE EXISTING STORM SEWER SYSTEM, CONTRACTOR SHALL
INSPECT THE SYSTEM TO ENSURE THAT IT IS NOT CLOGGED AND THAT IT IS
FUNCTIONING PROPERLY. IF THE SYSTEM IS CLOGGED, THE CONTRACTOR MUST CLEAN
THE SYSTEM. IF THE SYSTEM STILL DOES NOT FUNCTION PROPERLY, THE CONTRACTOR
SHALL REPORT THIS TO THE PROJECT SUPERINTENDENT AND THE ESC INSPECTOR.
3. CONTRACTOR MAY UTILIZE CONSTRUCTION WASTES SUCH AS BROKEN CONCRETE TO
BUILD TEMPORARY DIKES OR BERMS AND CAN ALSO BE USED AS STABILIZING FILL
WHERE EROSION PROBLEMS BECOME EVIDENT.
4. EXISTING AREAS OF VEGETATION WILL SURROUND THE ENTIRE SITE AND SERVE AS A
VEGETATIVE BUFFER ZONE IN HELPING TO ALLEVIATE SEDIMENT RUNOFF FROM THE SITE.
NOTE THAT ALL PRACTICAL BMP'S SHALL BE IMPLEMENTED AND THE EXISTING
VEGETATION WILL MERELY SERVE AS BACKUP PROTECTION AND SHALL NOT REPLACE
RECOMMENDED BMP PRACTICES.



EXPIRES 12/31/12

2011 GEOTHERMAL UTILITY CORRIDOR & INJECTION WELL FOR OREGON INSTITUTE OF TECHNOLOGY KLAMATH FALLS, OREGON		EROSION & SEDIMENT CONTROL PLAN COVER & SHEET INDEX	No.	REVISION	DATE	BY
ADKINS CONSULTING ENGINEERS, INC. 2950 Shasta Way - Klamath Falls, Oregon 97603 - (541) 884-4666 - FAX (541) 884-5335						
ADKINS CONSULTING ENGINEERS, INC. ENGINEERS, PLANNERS, SURVEYORS		ADKINS CONSULTING ENGINEERS, INC. 2950 Shasta Way - Klamath Falls, OR - Medford, OR - Astoria, OR		COPYRIGHT © 2012 ADKINS CONSULTING ENGINEERS, INC.		
DATE:	05-01-12	PROJECT:	1090-27	FILE:	C15.0.dwg	
DESIGNED BY:	MDR	DRAWN BY:	MDR	CHECKED BY:	JMM	
SURVEYED BY:	ACE	SCALE:	N/A	SHEET:	C15 OF 22	
C15						

GENERAL ESC NOTES

DEQ STANDARD NOTES

(PART III: REQUIRED ELEMENTS OF ESCP DRAWINGS)

1. HOLD A PRE-CONSTRUCTION MEETING OF PROJECT CONSTRUCTION PERSONNEL THAT INCLUDES THE INSPECTOR TO DISCUSS EROSION AND SEDIMENT CONTROL MEASURES AND CONSTRUCTION LIMITS. (SCHEDULE A.8.C.I.(3))
2. ALL PERMIT REGISTRANTS MUST IMPLEMENT THE ESCP. FAILURE TO IMPLEMENT ANY OF THE CONTROL MEASURES OR PRACTICES DESCRIBED IN THE ESCP IS A VIOLATION OF THE PERMIT. (SCHEDULE A.8.A)
3. RETAIN A COPY OF THE ESCP AND ALL REVISIONS ON SITE AND MAKE IT AVAILABLE ON REQUEST TO DEQ, AGENT, OR THE LOCAL MUNICIPALITY. DURING INACTIVE PERIODS OF GREATER THAN SEVEN (7) CONSECUTIVE CALENDAR DAYS, RETAIN THE ESCP AT THE CONSTRUCTION SITE OR AT ANOTHER LOCATION. (SCHEDULE B.2.A)
4. THE ESCP MEASURES SHOWN ON THIS PLAN ARE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, UPGRADE THESE MEASURES AS NEEDED TO COMPLY WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL EROSION AND SEDIMENT CONTROL REGULATIONS. (SCHEDULE A.8.C.II.(1)(C))
5. SUBMISSION OF ALL ESCP REVISIONS IS NOT REQUIRED. SUBMITTAL OF THE ESCP REVISIONS IS ONLY UNDER SPECIFIC CONDITIONS. (SCHEDULE A.12.C.III)
6. PHASE CLEARING AND GRADING TO THE MAXIMUM EXTENT PRACTICAL TO PREVENT EXPOSED INACTIVE AREAS FROM BECOMING A SOURCE OF EROSION. (SCHEDULE A.8.C.II.(1)(D))
7. IDENTIFY, MARK, AND PROTECT (BY FENCING OFF OR OTHER MEANS) CRITICAL RIPARIAN AREAS AND VEGETATION INCLUDING IMPORTANT TREES AND ASSOCIATED ROOTING ZONES, AND VEGETATION AREAS TO BE PRESERVED. IDENTIFY VEGETATIVE BUFFER ZONES BETWEEN THE SITE AND SENSITIVE AREAS (E.G., WETLANDS), AND OTHER AREAS TO BE PRESERVED, ESPECIALLY IN PERIMETER AREAS. (SCHEDULE A.8.C.I.(1) & (2))
8. PRESERVE EXISTING VEGETATION AND RE-VEGETATE OPEN AREAS WHEN PRACTICABLE BEFORE AND AFTER GRADING OR CONSTRUCTION. (SCHEDULE A.7.B.III.(1))
9. EROSION AND SEDIMENT CONTROL MEASURES INCLUDING PERIMETER SEDIMENT CONTROL MUST BE IN PLACE BEFORE VEGETATION IS DISTURBED AND MUST REMAIN IN PLACE AND BE MAINTAINED, REPAIRED, AND PROMPTLY IMPLEMENTED FOLLOWING PROCEDURES ESTABLISHED FOR THE DURATION OF CONSTRUCTION, INCLUDING PROTECTION FOR ACTIVE STORM DRAIN INLETS AND CATCH BASINS AND APPROPRIATE NON-STORMWATER POLLUTION CONTROLS. (SCHEDULE A.7.D.I. AND A.8.C)
10. ESTABLISH CONCRETE TRUCK AND OTHER CONCRETE EQUIPMENT WASHOUT AREAS BEFORE BEGINNING CONCRETE WORK. (SCHEDULE A.8.C.I.(6))
11. APPLY TEMPORARY AND/OR PERMANENT SOIL STABILIZATION MEASURES IMMEDIATELY ON ALL DISTURBED AREAS AS GRADING PROGRESSES AND FOR ALL ROADWAYS INCLUDING GRAVEL ROADWAYS. (SCHEDULE A.8.C.II.(2))
12. ESTABLISH MATERIAL AND WASTE STORAGE AREAS, AND OTHER NON-STORMWATER CONTROLS. (SCHEDULE A.8.C.I.(7))
13. PREVENT TRACKING OF SEDIMENT ONTO PUBLIC OR PRIVATE ROADS USING BMPS SUCH AS: GRAVELED (OR PAVED) EXITS AND PARKING AREAS, GRAVEL ALL UNPAVED ROADS LOCATED ONSITE, OR USE AN EXIT TIRE WASH. THESE BMPS MUST BE IN PLACE PRIOR TO LAND-DISTURBING ACTIVITIES. (SCHEDULE A.7.D.II.(1) AND A.8.C.I.(4))
14. WHEN TRUCKING SATURATED SOILS FROM THE SITE, EITHER USE WATER-TIGHT TRUCKS OR DRAIN LOADS ON SITE. (SCHEDULE A.7.D.II.(3))
15. USE BMPS TO PREVENT OR MINIMIZE STORMWATER EXPOSURE TO POLLUTANTS FROM SPILLS; VEHICLE AND EQUIPMENT FUELING, MAINTENANCE, AND STORAGE; OTHER CLEANING AND MAINTENANCE ACTIVITIES; AND WASTE HANDLING ACTIVITIES. THESE POLLUTANTS INCLUDE FUEL, HYDRAULIC FLUID, AND OTHER OILS FROM VEHICLES AND MACHINERY, AS WELL AS DEBRIS, LEFTOVER PAINTS, SOLVENTS, AND GLUES FROM CONSTRUCTION OPERATIONS. (SCHEDULE A.7.E.I.(2))
16. WATER OR USE A SOIL-BINDING AGENT OR OTHER DUST CONTROL TECHNIQUE AS NEEDED TO AVOID WIND-BLOWN SOIL. (SCHEDULE A.7.B.III)
17. THE APPLICATION RATE OF FERTILIZERS USED TO REESTABLISH VEGETATION MUST FOLLOW MANUFACTURER'S RECOMMENDATIONS TO MINIMIZE NUTRIENT RELEASES TO SURFACE WATERS. EXERCISE CAUTION WHEN USING TIME-RELEASE FERTILIZERS WITHIN ANY WATERWAY RIPARIAN ZONE. (SCHEDULE A.9.B.III)
18. IF A STORMWATER TREATMENT SYSTEM (FOR EXAMPLE, ELECTRO-COAGULATION, FLOCCULATION, FILTRATION, ETC.) FOR SEDIMENT OR OTHER POLLUTANT REMOVAL IS EMPLOYED, SUBMIT AN OPERATION AND MAINTENANCE PLAN (INCLUDING SYSTEM SCHEMATIC, LOCATION OF SYSTEM, LOCATION OF INLET, LOCATION OF DISCHARGE, DISCHARGE DISPERSION DEVICE DESIGN, AND A SAMPLING PLAN AND FREQUENCY) BEFORE OPERATING THE TREATMENT SYSTEM. OBTAIN PLAN APPROVAL BEFORE OPERATING THE TREATMENT SYSTEM. OPERATE AND MAINTAIN THE TREATMENT SYSTEM ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS. (SCHEDULE A.9.D)
19. TEMPORARILY STABILIZE SOILS AT THE END OF THE SHIFT BEFORE HOLIDAYS AND WEEKENDS, IF NEEDED. THE REGISTRANT IS RESPONSIBLE FOR ENSURING THAT SOILS ARE STABLE DURING RAIN EVENTS AT ALL TIMES OF THE YEAR. (SCHEDULE A.7.B)
20. CONSTRUCTION ACTIVITIES MUST AVOID OR MINIMIZE EXCAVATION AND CREATION OF BARE GROUND DURING WET WEATHER. (SCHEDULE A.7.A.I)
21. SEDIMENT FENCE: REMOVE TRAPPED SEDIMENT BEFORE IT REACHES ONE THIRD OF THE ABOVE GROUND FENCE HEIGHT AND BEFORE FENCE REMOVAL. (SCHEDULE A.9.C.I.)
22. OTHER SEDIMENT BARRIERS (SUCH AS BOILBAGS): REMOVE SEDIMENT BEFORE IT REACHES TWO INCHES DEPTH ABOVE GROUND HEIGHT AND BEFORE BMP REMOVAL. (SCHEDULE A.9.C.II)
23. SEDIMENT BASINS AND SEDIMENT TRAPS: REMOVE TRAPPED SEDIMENTS BEFORE DESIGN CAPACITY HAS BEEN REDUCED BY FIFTY PERCENT AND AT COMPLETION OF PROJECT. (SCHEDULE A.9.C.III & IV)
24. WITHIN 24 HOURS, SIGNIFICANT SEDIMENT THAT HAS LEFT THE CONSTRUCTION SITE, MUST BE REMEDIATED. INVESTIGATE THE CAUSE OF THE SEDIMENT RELEASE AND IMPLEMENT STEPS TO PREVENT A RECURRENCE OF THE DISCHARGE WITHIN THE SAME 24 HOURS. ANY IN-STREAM CLEAN UP OF SEDIMENT SHALL BE PERFORMED ACCORDING TO THE OREGON DIVISION OF STATE LANDS REQUIRED TIMEFRAME. (SCHEDULE A.9.B.I)
25. THE INTENTIONAL WASHING OF SEDIMENT INTO STORM SEWERS OR DRAINAGE WAYS MUST NOT OCCUR. VACUUMING OR DRY SWEEPING AND MATERIAL PICKUP MUST BE USED TO CLEANUP RELEASED SEDIMENTS. (SCHEDULE A.7.F.I)
26. THE ENTIRE SITE MUST BE TEMPORARILY STABILIZED USING VEGETATION OR A HEAVY MULCH LAYER, TEMPORARY SEEDING, OR OTHER METHOD SHOULD ALL CONSTRUCTION ACTIVITIES CEASE FOR 30 DAYS OR MORE. (SCHEDULE A.7.F.I)
27. PROVIDE TEMPORARY STABILIZATION FOR THAT PORTION OF THE SITE WHERE CONSTRUCTION ACTIVITIES CEASE FOR 14 DAYS OR MORE WITH A COVERING OF BLOWN STRAW AND A TACKIFIER, LOOSE STRAW, OR AN ADEQUATE COVERING OF COMPOST MULCH UNTIL WORK RESUMES ON THAT PORTION OF THE SITE. (SCHEDULE A.7.F.II)
28. THE DESIGNATED EROSION AND SEDIMENT CONTROL INSPECTOR MUST PERFORM DAILY INSPECTIONS FROM THE BMPS AND DISCHARGE OUTFALLS WHEN RAINFALL AND RUNOFF OCCUR. RECORD THE INSPECTIONS AND OBSERVATIONS IN A LOG THAT IS ON SITE. (SCHEDULE B.1.B(1))

29. ALL ESCP CONTROLS AND PRACTICES MUST BE INSPECTED VISUALLY ONCE TO ENSURE THAT BMPS ARE IN WORKING ORDER PRIOR TO THE SITE BECOMING INACTIVE OR IN ANTICIPATION OF SITE INACCESSIBILITY AND MUST BE INSPECTED VISUALLY ONCE EVERY TWO (2) WEEKS DURING INACTIVE PERIODS GREATER THAN SEVEN (7) CONSECUTIVE CALENDAR DAYS. (SCHEDULE B.1.B.(2) & (3))
30. IF PRACTICAL, INSPECTIONS MUST OCCUR DAILY AT A RELEVANT AND ACCESSIBLE DISCHARGE POINT OR DOWNSTREAM LOCATION DURING PERIODS IN WHICH THE SITE IS INACCESSIBLE DUE TO INCLEMENT WEATHER. (SCHEDULE B.1.B.(4))
31. DO NOT REMOVE TEMPORARY SEDIMENT CONTROL PRACTICES UNTIL PERMANENT VEGETATION OR OTHER COVER OF EXPOSED AREAS IS ESTABLISHED. IDENTIFY THE TYPE OF VEGETATIVE SEED MIX USED. (SCHEDULE A.7.B.III)
32. PROVIDE PERMANENT EROSION CONTROL MEASURES ON ALL EXPOSED AREAS. REMOVE ALL CONTROL MEASURES AS EXPOSED AREAS BECOME STABILIZED, UNLESS DOING SO CONFLICTS WITH LOCAL REQUIREMENTS. PROPERLY DISPOSE OF CONSTRUCTION MATERIALS AND WASTE, INCLUDING SEDIMENT RETAINED BY TEMPORARY BMPS. (SCHEDULE A.8.C.III)
33. PRIOR TO ANY GRADING, EXCAVATION OR FILL OF MATERIALS THE APPLICANT MUST OBTAIN A CITY ENGINEERING SITE CONSTRUCTION PERMIT FOR A LARGE SITE GRADING WITH EROSION & SEDIMENT CONTROL SITE.

GENERAL IMPLEMENTATION NOTES

1. EROSION CONTROL MEASURES APPROVED FOR USE INCLUDE SILT FENCING, STRAW BALES, SEDIMENT PONDS (TEMPORARY AND PERMANENT), TEMPORARY ROADSIDE DITCHES, EARTHEN DIKES, HYDROMULCHING, AND DRY SEEDING AND/OR OTHER APPROVED METHODS AND MATERIALS.
2. SLOPE TO RECEIVE TEMPORARY OR PERMANENT SEEDING SHALL HAVE THE SURFACE ROUGHENED BY MEANS OF TRACK-WALKING OR THE USE OF OTHER APPROVED IMPLEMENTS. SURFACE ROUGHENING IMPROVES SEED BEDDING AND REDUCES RUN-OFF VELOCITY.
3. LONG TERM SLOPE STABILIZATION MEASURES SHALL INCLUDE THE ESTABLISHMENT OF PERMANENT VEGETATIVE COVER VIA SEEDING WITH APPROVED MIX AND APPLICATION RATE.
4. TEMPORARY SLOPE STABILIZATION MEASURES SHALL INCLUDE: COVERING EXPOSED SOIL WITH PLASTIC SHEETING, STRAW MULCHING, WOOD CHIPS, OR OTHER APPROVED MEASURES.
5. STOCKPILED SOIL OR STRIPPINGS SHALL BE PLACED IN A STABLE LOCATION AND CONFIGURATION. DURING "WET WEATHER" PERIODS, STOCKPILES SHALL BE COVERED WITH PLASTIC SHEETING OR STRAW MULCH. DUE TO THE STEEP SLOPES ON THE SITE, HAY BALES SHALL BE REQUIRED ALONG THE SIDES AND BOTTOM OF THE STOCKPILE.
6. EXPOSED CUT OR FILL AREAS SHALL BE STABILIZED THROUGH THE USE OF TEMPORARY SEEDING AND MULCHING, EROSION CONTROL BLANKETS OR MATS, MID-SLOPE SEDIMENT FENCES OR WATTLES, OR OTHER APPROPRIATE MEASURES. SLOPES EXCEEDING 25% MAY REQUIRE ADDITIONAL EROSION CONTROL MEASURES.
7. AREAS SUBJECT TO WIND EROSION SHALL USE APPROPRIATE DUST CONTROL MEASURES INCLUDING THE APPLICATION OF A FINE SPRAY OF WATER, PLASTIC SHEETING, STRAW MULCHING, OR OTHER APPROVED MEASURES.
8. ALL BASE ESC MEASURES (INLET PROTECTION, PERIMETER SEDIMENT CONTROL, GRAVEL CONSTRUCTION ENTRANCES, ETC.) MUST BE IN PLACE, FUNCTIONAL, AND APPROVED IN AN INITIAL INSPECTION, PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES. CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES INCLUDING, BUT NOT LIMITED TO, TIRE WASHES, STREET SWEEPING, AND VACUUMING MAY BE REQUIRED TO INSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.
9. ACTIVE INLETS TO STORM WATER SYSTEMS SHALL BE PROTECTED THROUGH THE USE OF APPROVED INLET PROTECTION MEASURES. ALL INLET PROTECTION MEASURES ARE TO BE REGULARLY INSPECTED AND MAINTAINED AS NEEDED.
10. SATURATED MATERIALS THAT ARE HAULED OFF-SITE MUST BE TRANSPORTED IN WATER-TIGHT TRUCKS TO ELIMINATE SPILLAGE OF SEDIMENT AND SEDIMENT-LADEN WATER.
11. SWEEPINGS FROM EXPOSED AGGREGATE CONCRETE SHALL NOT BE TRANSFERRED TO THE STORM WATER SYSTEM. SWEEPINGS SHALL BE PICKED UP AND DISPOSED IN THE TRASH.
12. AVOID PAVING IN WET WEATHER WHEN PAVING CHEMICALS CAN RUN-OFF INTO THE STORM WATER SYSTEM.
13. USE BMPS SUCH AS CHECK-DAMS, BERMS, SURFACE ROUGHENING, HAY BALES, AND INLET PROTECTION TO REDUCE SEDIMENT LOSS. RUN-ON AND RUN-OFF CONTROLS SHALL BE IN PLACE AND FUNCTIONING PRIOR TO BEGINNING SUBSTANTIAL CONSTRUCTION ACTIVITIES.
14. COVER CATCH BASINS, MANHOLES, AND OTHER DISCHARGE POINTS WHEN APPLYING SEAL COAT, TACK COAT, ETC. TO PREVENT INTRODUCING THESE MATERIALS TO THE STORM WATER SYSTEM.
15. PERPETUAL SCENIC EASEMENT BOUNDARY SHALL BE CLEARLY DELINEATED WITH SURVEYING STAKES IN A MANNER THAT IS CLEARLY VISIBLE TO ANYONE IN THE AREA. NO ACTIVITIES ARE PERMITTED TO OCCUR BEYOND THIS EASEMENT BOUNDARY.

PAVING OPERATIONS CONTROL SPECIFICATIONS

1. PROTECT STORM DRAIN INLETS NEAR WORK AND DOWN GRADIENT OF WORK AREAS DURING SAW CUTTING, PAVING, OR GRINDING OPERATIONS WHEN CROSSING EXISTING ROADWAYS WITH THE GEOTHERMAL CORRIDOR.
2. SLURRY PRODUCED FROM SAW CUTTING PAVEMENT SHALL BE SHOVELED OR VACUUMED, AND REMOVED FROM SITE.
3. MINIMIZE OVER SPRAY OF TACKIFYING EMULSIONS OR PLACEMENT OF OTHER PAVING MATERIALS BEYOND THE LIMITS OF THE AREA TO BE PAVED OR PATCHED.
4. COLLECT AND REMOVE ALL BROKEN ASPHALT AND CONCRETE OR EXCESS MATERIALS, RECYCLE WHEN FEASIBLE AND DISPOSE OF MATERIALS IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REQUIREMENTS.
5. DO NOT APPLY ASPHALT, CONCRETE PAVING, SEAL COAT, TACK COAT, SLURRY SEAL, OR FOG SEAL IF RAIN IS EXPECTED DURING THE APPLICATION OR CURING PERIOD.

No.	REVISION	DATE	BY

2011 GEOTHERMAL UTILITY CORRIDOR & INJECTION WELL FOR OREGON INSTITUTE OF TECHNOLOGY KLAMATH FALLS, OREGON EROSION & SEDIMENT CONTROL PLAN GENERAL ESC NOTES

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CONSULTING ENGINEERS, INC.
2950 Sherato Way · Klamath Falls, Oregon 97603 · (541) 884-4886 · FAX (541) 884-5335
Klamath Falls, OR · Medford, OR · Astoria, OR

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DATE:	05-01-12
PROJECT:	1090-27
FILE:	C15.1.dwg
DESIGNED BY:	MDR
DRAWN BY:	MDR
CHECKED BY:	JMM
SURVEYED BY:	ACE
SCALE:	AS NOTED
SHEET:	C15.1 OF 22



C15.1

EXPIRES 12/31/12

ESC NOTES AND BMP MATRIX

TOPSOIL NOTES FOR STRIPPING, STOCKPILING, & REUSE

- SOILS OF THE TEXTURAL CLASS OF LOAM, SANDY LOAM, AND SILT LOAM ARE BEST; SANDY CLAY LOAM, SILTY CLAY LOAM, CLAY LOAM, AND LOAMY SAND ARE FAIR. DO NOT USE HEAVY CLAY AND ORGANIC SOILS SUCH AS PEAT OR MUCK AS TOPSOIL.
- STRIP TOPSOIL ONLY FROM THOSE AREAS THAT WILL BE DISTURBED BY EXCAVATION, FILLING, OR COMPACTING BY EQUIPMENT. A FOUR TO SIX INCH STRIPPING DEPTH IS COMMON, BUT MAY BE GREATER DUE TO THE HEAVY NATURAL LITTER AND UNEVEN GROUND SURFACE.
- DETERMINE DEPTH OF STRIPPING BY TAKING SOIL CORES AT SEVERAL LOCATIONS WITHIN EACH AREA TO BE STRIPPED. TOPSOIL DEPTH GENERALLY VARIES ALONG A GRADIENT FROM HILLTOP TO TOE OF THE SLOPE.
- BEFORE STRIPPING, IMPLEMENT BMP MEASURES SUCH AS DIVERSION CHANNELS, STRAW BALES, SILT FENCE, AND OTHER EROSION CONTROL MEASURES.
- THE EXCESSIVE SOIL STOCKPILE AREAS WERE SELECTED BECAUSE THOSE AREAS ARE REPRESENTATIVE OF THE FLATTEST AREAS ON THE PROJECT SITE. TO ENSURE THAT SEDIMENT DOES NOT RUN OFF THE SITE FROM THESE STOCKPILE AREAS, STRAW BALES SHALL BE LINED ALONG THE LOWEST PORTION OF THE STOCKPILE AREA AND UP EACH SIDE TO A POINT SO THAT NO SEDIMENT FROM THE PILES WILL BE ABLE TO LEAVE THE AREA. (SEE DETAIL 3, SHEET C15.4). CONTRACTOR MAY CHANGE THE LOCATION OF THE EXCESSIVE SOILS STOCKPILE AREA AS LONG AS PROPER PROCEDURE IS ADHERED TO.
- SEDIMENT FENCE WILL BE UTILIZED WHERE STRAW BALES ARE NOT USED. CONTRACTOR TO MAKE SURE THAT THE SEDIMENT FENCING STARTS WHERE THE STRAW BALES END SO THAT THERE IS A CONTINUAL LINE OF SEDIMENT REDUCING MEASURES IN PLACE.
- IF STOCKPILES OF TOPSOIL ARE EXPECTED TO BE STORED FOR LONGER THAN 30 DAYS, CONTRACTOR SHALL TEMPORARILY SEED AND/OR MULCH AS SOON AS POSSIBLE TO ASSURE THE STORED MATERIAL IS NOT UNNECESSARILY EXPOSED AND ALLOWED TO ERODE. USE LOCALLY GROWN AND NATIVE SEED STOCKS WHEN POSSIBLE THAT ARE MYCORRHIZAL-DEPENDENT.
- TOPSOIL STOCKPILES SHOULD BE LOW IN HEIGHT, (PREFERABLY LESS THAN 4 FEET HIGH) AND FLAT AND SHOULD BE USED WITHIN 6 MONTHS TO PROMOTE HEALTHY SOIL ORGANISMS AND MICROBES. STOCKPILES NOT USED WITHIN 6 MONTHS SHOULD BE RE-SEEDING WITH A SPECIES THAT IS MYCORRHIZAL-DEPENDENT TO AVOID THE DEVELOPMENT OF ANAEROBIC CONDITIONS IN THE STOCKPILE. IN ADDITION, TOPSOIL STOCKPILES CAN BE TURNED PERIODICALLY TO KEEP ORGANISMS ALIVE FOR LARGER STOCKPILES AND DURING EXTREMELY HOT WEATHER.
- WHERE THE pH OF THE EXISTING SUBSOIL IS 6.0 OR LESS, OR THE SOIL IS COMPOSED OF HEAVY CLAYS, INCORPORATE AGRICULTURAL LIMESTONE IN AMOUNTS RECOMMENDED BY SOIL TESTS OR SPECIFIED FOR THE SEEDING MIXTURE TO BE USED. INCORPORATE LIME TO A DEPTH OF AT LEAST 2 INCHES BY DISKING. ENSURE THAT ALL OF THE LIME MIXTURE IS INCORPORATED INTO THE SOIL TO MINIMIZE DIRECT CONTACT WITH STORM WATER RUNOFF AND HANDLE LIME IN ACCORDANCE WITH MANUFACTURING RECOMMENDATIONS OR NS-7.
- IMMEDIATELY PRIOR TO SPREADING THE TOPSOIL, LOOSEN THE SUBGRADE BY DISKING OR SCARIFYING TO A DEPTH OF AT LEAST 3 INCHES TO ENSURE BONDING OF THE TOPSOIL AND SUBSOIL. IF NO AMENDMENTS HAVE BEEN INCORPORATED, LOOSEN THE SOIL TO A DEPTH OF AT LEAST 6 INCHES BEFORE SPREADING.
- UNIFORMLY DISTRIBUTE TOPSOIL TO A MINIMUM COMPACTED DEPTH OF 2 INCHES ON 3:1 SLOPES AND 4 INCHES ON FLATTER SLOPES.
- DO NOT SPREAD TOPSOIL WHILE IT IS FROZEN OR MUDDY OR WHEN THE SUBGRADE IS WET OR FROZEN.
- CORRECT ANY IRREGULARITIES IN THE SURFACE THAT RESULT FROM TOP SOILING OR OTHER OPERATIONS TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
- COMPACT THE TOPSOIL ENOUGH TO ENSURE GOOD CONTACT WITH THE UNDERLYING SOIL, BUT AVOID EXCESSIVE COMPACTING, AS IT INCREASES RUNOFF AND INHIBITS SEED GERMINATION. LIGHT PACKING WITH A ROLLER IS RECOMMENDED WHERE HIGH MAINTENANCE TURF IS TO BE ESTABLISHED.

SEEDING & PLANTING NOTES

- CONTRACTOR TO USE TEMPORARY SEEDING AND PLANTING ON ALL DISTURBED AREAS THAT WILL BE EXPOSED FOR 30 DAYS OR LONGER, TO REDUCE EROSION BY SEEDING WITH APPROPRIATE AND RAPIDLY GROWING ANNUAL GRASSES.
- PRIOR TO SEEDING, INSTALL NECESSARY EROSION CONTROL PRACTICES SUCH AS TEMPORARY DIVERSION CHANNELS AND STRAW BALES FOR EXTREME SLOPES. NOTE THAT TEMPORARY SEEDING IS RECOMMENDED FOR THESE EROSION CONTROL SYSTEMS TO HELP ALLEVIATE SEDIMENT BUILDUP OR EXCESSIVE EROSION.
- PROPER SEEDBED PREPARATION AND THE USED OF QUALITY SEED ARE IMPORTANT IN THIS PRACTICE JUST AS IN PERMANENT SEEDING. FAILURE TO CAREFULLY FOLLOW SOUND AGRONOMIC RECOMMENDATIONS WILL OFTEN RESULT IN AN INADEQUATE STAND OF VEGETATION THAT PROVIDES LITTLE OR NO EROSION CONTROL.
- ANNUAL PLANTS WHICH SPROUT RAPIDLY AND SURVIVE FOR ONLY ONE GROWING SEASON ARE SUITABLE FOR ESTABLISHING TEMPORARY VEGETATIVE COVER. CONSIDER MIXES BECAUSE THEY ARE MORE ADAPTABLE THAN SINGLE SPECIES.
- CONTRACTOR TO CHECK WITH THE OREGON INSTITUTE OF TECHNOLOGY FOR LOCAL SPECIFICATIONS AND REQUIREMENTS PRIOR TO SEEDING AND PLANTING. ALL SEED SHOULD BE SELECTED IN COORDINATION WITH THE OREGON INSTITUTE OF TECHNOLOGY RECOMMENDATIONS.
- MULCHING IS COMMONLY USED WITH SEEDING PRACTICES FOR TEMPORARY COVER AND TO AID IN THE ESTABLISHMENT OF VEGETATION. ALWAYS APPLY SEED BEFORE MULCH, UNLESS SEED IS APPLIED WITH A HYDRAULIC MATRIX OR BONDED FIBER MATRIX.
- CHECK WITH THE OREGON INSTITUTE OF TECHNOLOGY PRIOR TO USING FERTILIZERS OR PESTICIDES.
- HARDENED SOILS SHOULD BE LOOSENED BY DISKING, RAKING, OR HARROWING. TRACKING WITH BULLDOZER CLEATS IS VERY EFFECTIVE ON SANDY SOILS. IF THE AREA HAS BEEN RECENTLY DISTURBED, NO FURTHER ROUGHENING IS REQUIRED.
- HYDRAULIC PLANTING SUCH AS HYDROSEEDING IS AN ACCEPTABLE OPTIONS TO SEEDING AND GENERALLY REQUIRES LESS SEEDBED PREPARATION.
- SLOPES 2:1 AND STEEPER WILL REQUIRE HYDROSEEDING FOR WET WEATHER SHUT DOWN AND FINAL STABILIZATION.
- IF DRY SEEDING IS USED AT PROJECT COMPLETION, PREPARE A 3-5 INCH DEEP SEEDBED, WITH THE TOP 3-4 INCHES CONSISTING OF TOPSOIL.
- THE SEEDBED SHOULD BE FIRM BUT NOT COMPACTED. THE TOP 3 INCHES OF SOIL SHOULD BE LOOSE, MOIST, AND FREE OF LARGE CLOGS AND STONES.
- NEWLY SEEDER AREAS NEED TO BE INSPECTED FREQUENTLY TO ENSURE THE GRASS IS GROWING. AREAS THAT FAIL TO ESTABLISH COVER ADEQUATE TO PREVENT EROSION WILL BE RE-SEEDING AS SOON AS SUCH AREAS ARE IDENTIFIED. SPOT SEEDING CAN BE DONE ON SMALL AREAS TO FILL IN BARE SPOTS WHERE GRASS DID NOT GROW PROPERLY.
- IF THE SEEDER AREA IS DAMAGED DUE TO CONCENTRATED RUNOFF, CONTRACTOR SHALL LOOK AT POSSIBLY IMPLEMENTING ADDITIONAL BMP PRACTICES. IF TEMPORARY VEGETATION OR SEEDING IS USED, AREAS SHALL BE MAINTAINED UNTIL PERMANENT VEGETATION OR OTHER EROSION CONTROL PRACTICES CAN BE ESTABLISHED.
- SEED USED FOR TEMPORARY OR PERMANENT SEEDING SHALL BE COMPOSED OF ONE OF THE FOLLOWING MIXTURES, UNLESS OTHERWISE AUTHORIZED: DWARF GRASS MIX (MIN. 100 LB./AC.) CONSISTING OF DWARF PERENNIAL RYE GRASS (80% BY WEIGHT) AND CREEPING RED FESCUE (20% BY WEIGHT); OR STANDARD HEIGHT GRASS MIX (MIN. 100LB./AC.) CONSISTING OF ANNUAL RYE GRASS (40% BY WEIGHT) AND TURF-TYPE FESCUE (60% BY WEIGHT).

BMP MATRIX FOR CONSTRUCTION PHASES

BMPs	* YES	** NO	PHASES OF CONSTRUCTION ACTIVITIES					WET***
			CLEARING & GRUBBING	ROUGH GRADING	CONSTRUCTION UTILITIES	STREETS	FINAL STABILITY	
RUNOFF CONTROLS	X							
PIPE SLOPE DRAINS		X						
ENERGY DISSIPATORS	X							X
RUN-ON DIVERSION (TEMPORARY DITCH DIVERSION)	X							X
TEMPORARY DIVERSION DIKES		X						
GRASS CHANNELS OR TURF REINFORCEMENT MATS		X						
TRENCH DRAINS - RUNOFF TO TREATMENT BMP		X						
DROP INLETS		X						
CHECK DAMS	****X		X	X	X			X
CLEARING & GRADING PRACTICES	X							
TOP-SOILING (CLEARING & GRUBBING STOCKPILING)	X		X	X	X		X	X
TEMPORARY SEEDING AND PLANTING		X						
PERMANENT SEEDING AND PLANTING	X		X	X	X		X	X
MYCORRHIZAE / BIOFERTILIZERS		X						
MULCHES		X						
COMPOST BLANKETS		X						
EROSION CONTROL BLANKETS AND MATS		X						
SOIL BINDERS		X						
SOIL TACKIFIERS		X						
SODDING VEGETATIVE BUFFER STRIPS		X						
PROTECT TREES W/ CONSTRUCTION FENCES		X						
VEGETATIVE EROSION CONTROLS	X							
LIVE STAKING (STABILIZATION PRACTICE)		X						
LIVE FASCINES / BRUSH WATTLES (STABILIZATION)		X						
STABILIZATION MATS (HYDROMULCH BLOWN ON)	X						X	X
POLE PLANTING (STREAM BANK STABILIZATION)		X						
BRUSH BOX (STREAM BANK STABILIZATION)		X						
FASCINES W/ SUB-DRAINS (BANK STABILIZATION)		X						
LIVE POLE DRAINS (STREAM BANK STABILIZATION)		X						
BRUSH PACKING (STREAM BANK STABILIZATION)		X						
LIVE GULLY FILL REPAIR (BANK STABILIZATION)		X						
PRESERVE EXISTING VEGETATIVE BUFFER AREAS	X		X	X	X		X	X
EROSION CONTROL PRACTICES	X							
SEDIMENT FENCING	****X		X	X	X			X
SAND BAG BARRIER		X						
GRAVEL BAG BERM (WITH COMPOST BERM)		X						
EARTHEN DIKES FOR STABILIZATION		X						
DRAINAGE SWALES		X						
SUBSURFACE DRAINS (DAYLIGHT TO THE SURFACE)		X						
ROCK OUTLET PROTECTION (RIP-RAP)		X						
SEDIMENT TRAP		X						
ROCK & BRUSH FILTERS (BANK STABILIZATION)		X						
COMPOST BERM / COMPOST SOCK		X						
FIBER ROLLS / STRAW WATTLES		X						
STORM DRAIN INLET PROTECTION	****X		X	X	X			X
SEDIMENT BASINS (TEMPORARY & PERMANENT)		X						
ROADS GRAVELED (CONSTRUCTION ENTRANCE)	****X					X		X
DEWATERING AND PONDED WATER MANAGEMENT		X						
PAVING OPERATIONS CONTROLS		X						
TEMPORARY EQUIPMENT BRIDGE		X						
BMP's TO PREVENT ILLICIT CONNECTION	****X		X		X			
BMP's TO PREVENT ILLEGAL DISCHARGE	****X		X		X			
REUSE AND RECYCLE CONSTRUCTION WASTE	X			X	X		X	X

- * SEE SHEET C15.4 FOR BEST MANAGEMENT PRACTICE (BMP's) DETAILS.
- ** FOR RATIONALE FOR NOT USING THE BMPs, SEE SEPARATE ESCP PARTS I-III FORMS.
- *** WET WEATHER SEASON IS TYPICALLY BETWEEN OCTOBER 1 AND MAY 31.
- **** SIGNIFIES BMP's THAT WILL BE INSTALLED PRIOR TO ANY GROUND DISTURBING ACTIVITY.



EXPIRES 12/31/12

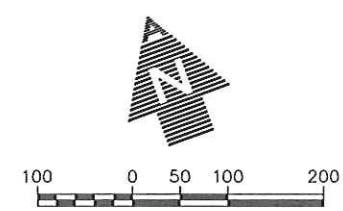
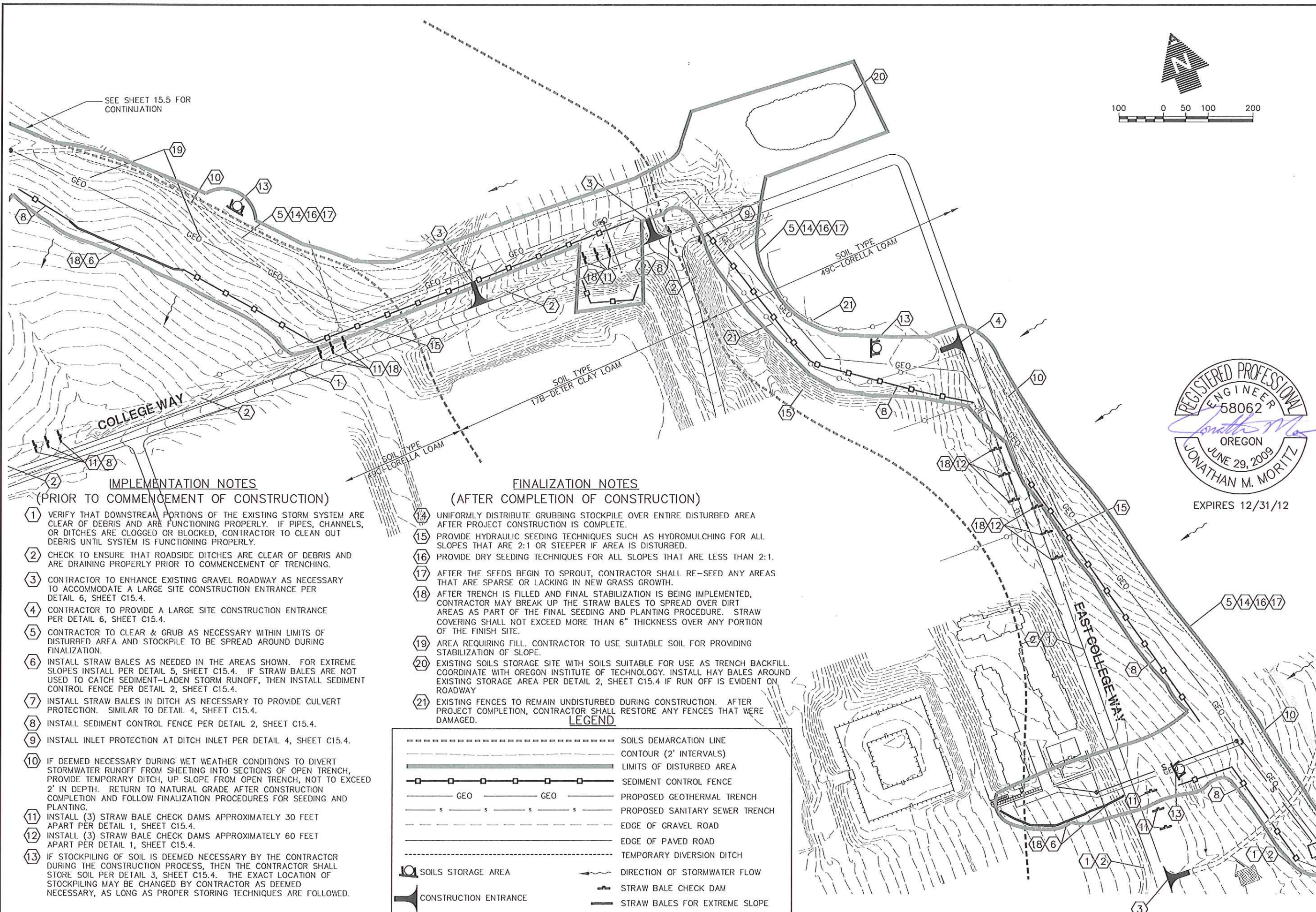
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2011 GEOTHERMAL UTILITY CORRIDOR & INJECTION WELL FOR OREGON INSTITUTE OF TECHNOLOGY KLAMATH FALLS, OREGON
EROSION & SEDIMENT CONTROL PLAN
ESC NOTES & BMP MATRIX

ADKINS CONSULTING ENGINEERS, INC. SINCE 1963
Engineers ▲ Planners ▲ Surveyors
2950 Shasta Way · Klamath Falls, Oregon 97603 · (541) 884-4666 · FAX (541) 884-5333
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DATE: 05-01-12
PROJECT: 1090-27
FILE: C15.2.dwg
DESIGNED BY: MDR
DRAWN BY: MDR
CHECKED BY: JMM
SURVEYED BY: ACE
SCALE: N/A
SHEET: C15.2 OF 22

C15.2



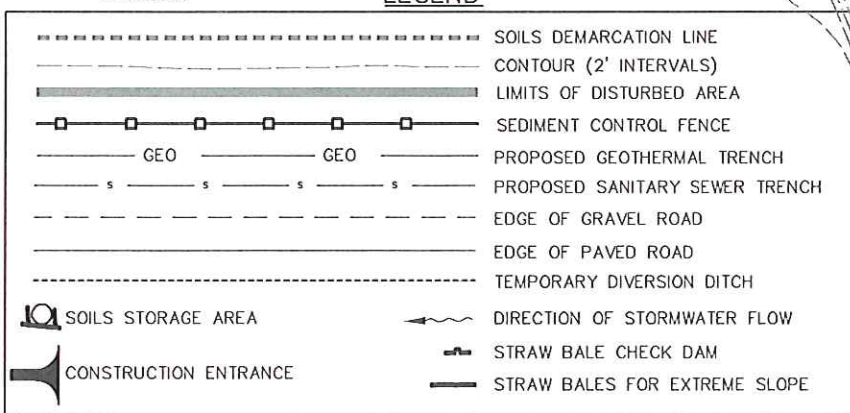
SEE SHEET 15.5 FOR CONTINUATION

**IMPLEMENTATION NOTES
(PRIOR TO COMMENCEMENT OF CONSTRUCTION)**

- 1 VERIFY THAT DOWNSTREAM PORTIONS OF THE EXISTING STORM SYSTEM ARE CLEAR OF DEBRIS AND ARE FUNCTIONING PROPERLY. IF PIPES, CHANNELS, OR DITCHES ARE CLOGGED OR BLOCKED, CONTRACTOR TO CLEAN OUT DEBRIS UNTIL SYSTEM IS FUNCTIONING PROPERLY.
- 2 CHECK TO ENSURE THAT ROADSIDE DITCHES ARE CLEAR OF DEBRIS AND ARE DRAINING PROPERLY PRIOR TO COMMENCEMENT OF TRENCHING.
- 3 CONTRACTOR TO ENHANCE EXISTING GRAVEL ROADWAY AS NECESSARY TO ACCOMMODATE A LARGE SITE CONSTRUCTION ENTRANCE PER DETAIL 6, SHEET C15.4.
- 4 CONTRACTOR TO PROVIDE A LARGE SITE CONSTRUCTION ENTRANCE PER DETAIL 6, SHEET C15.4.
- 5 CONTRACTOR TO CLEAR & GRUB AS NECESSARY WITHIN LIMITS OF DISTURBED AREA AND STOCKPILE TO BE SPREAD AROUND DURING FINALIZATION.
- 6 INSTALL STRAW BALES AS NEEDED IN THE AREAS SHOWN. FOR EXTREME SLOPES INSTALL PER DETAIL 5, SHEET C15.4. IF STRAW BALES ARE NOT USED TO CATCH SEDIMENT-LADEN STORM RUNOFF, THEN INSTALL SEDIMENT CONTROL FENCE PER DETAIL 2, SHEET C15.4.
- 7 INSTALL STRAW BALES IN DITCH AS NECESSARY TO PROVIDE CULVERT PROTECTION. SIMILAR TO DETAIL 4, SHEET C15.4.
- 8 INSTALL SEDIMENT CONTROL FENCE PER DETAIL 2, SHEET C15.4.
- 9 INSTALL INLET PROTECTION AT DITCH INLET PER DETAIL 4, SHEET C15.4.
- 10 IF DEEMED NECESSARY DURING WET WEATHER CONDITIONS TO DIVERT STORMWATER RUNOFF FROM SHEETING INTO SECTIONS OF OPEN TRENCH, PROVIDE TEMPORARY DITCH, UP SLOPE FROM OPEN TRENCH, NOT TO EXCEED 2' IN DEPTH. RETURN TO NATURAL GRADE AFTER CONSTRUCTION COMPLETION AND FOLLOW FINALIZATION PROCEDURES FOR SEEDING AND PLANTING.
- 11 INSTALL (3) STRAW BALE CHECK DAMS APPROXIMATELY 30 FEET APART PER DETAIL 1, SHEET C15.4.
- 12 INSTALL (3) STRAW BALE CHECK DAMS APPROXIMATELY 60 FEET APART PER DETAIL 1, SHEET C15.4.
- 13 IF STOCKPILING OF SOIL IS DEEMED NECESSARY BY THE CONTRACTOR DURING THE CONSTRUCTION PROCESS, THEN THE CONTRACTOR SHALL STORE SOIL PER DETAIL 3, SHEET C15.4. THE EXACT LOCATION OF STOCKPILING MAY BE CHANGED BY CONTRACTOR AS DEEMED NECESSARY, AS LONG AS PROPER STORING TECHNIQUES ARE FOLLOWED.

**FINALIZATION NOTES
(AFTER COMPLETION OF CONSTRUCTION)**

- 14 UNIFORMLY DISTRIBUTE GRUBBING STOCKPILE OVER ENTIRE DISTURBED AREA AFTER PROJECT CONSTRUCTION IS COMPLETE.
- 15 PROVIDE HYDRAULIC SEEDING TECHNIQUES SUCH AS HYDROMULCHING FOR ALL SLOPES THAT ARE 2:1 OR STEEPER IF AREA IS DISTURBED.
- 16 PROVIDE DRY SEEDING TECHNIQUES FOR ALL SLOPES THAT ARE LESS THAN 2:1.
- 17 AFTER THE SEEDS BEGIN TO SPROUT, CONTRACTOR SHALL RE-SEED ANY AREAS THAT ARE SPARSE OR LACKING IN NEW GRASS GROWTH.
- 18 AFTER TRENCH IS FILLED AND FINAL STABILIZATION IS BEING IMPLEMENTED, CONTRACTOR MAY BREAK UP THE STRAW BALES TO SPREAD OVER DIRT AREAS AS PART OF THE FINAL SEEDING AND PLANTING PROCEDURE. STRAW COVERING SHALL NOT EXCEED MORE THAN 6" THICKNESS OVER ANY PORTION OF THE FINISH SITE.
- 19 AREA REQUIRING FILL. CONTRACTOR TO USE SUITABLE SOIL FOR PROVIDING STABILIZATION OF SLOPE.
- 20 EXISTING SOILS STORAGE SITE WITH SOILS SUITABLE FOR USE AS TRENCH BACKFILL. COORDINATE WITH OREGON INSTITUTE OF TECHNOLOGY. INSTALL HAY BALES AROUND EXISTING STORAGE AREA PER DETAIL 2, SHEET C15.4 IF RUN OFF IS EVIDENT ON ROADWAY.
- 21 EXISTING FENCES TO REMAIN UNDISTURBED DURING CONSTRUCTION. AFTER PROJECT COMPLETION, CONTRACTOR SHALL RESTORE ANY FENCES THAT WERE DAMAGED.



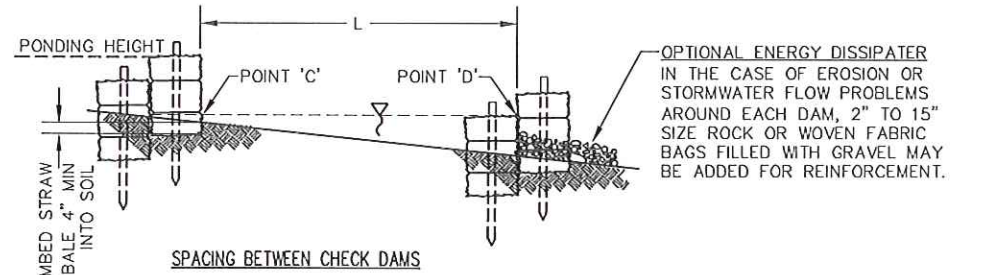
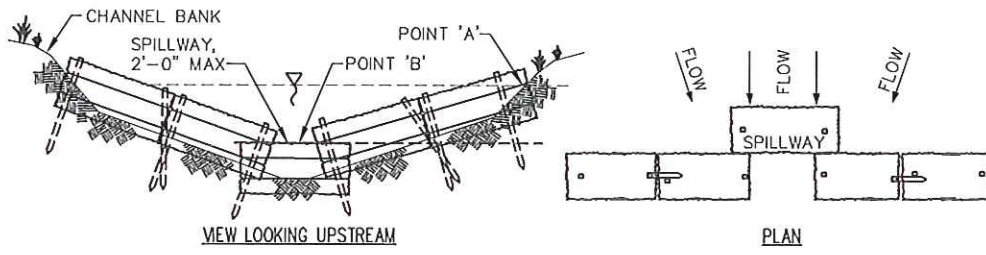
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2011 GEOTHERMAL UTILITY CORRIDOR & INJECTION WELL FOR OREGON INSTITUTE OF TECHNOLOGY KLAMATH FALLS, OREGON EROSION & SEDIMENT CONTROL PLAN SITE PLAN

ADKINS CONSULTING ENGINEERS, INC. ENGINEERS, PLANNERS, SURVEYORS
 2950 Shasta Way - Klamath Falls, Oregon 97603 (541) 884-6666 - FAX (541) 884-5335
 Klamath Falls, OR - Medford, OR - Astoria, OR
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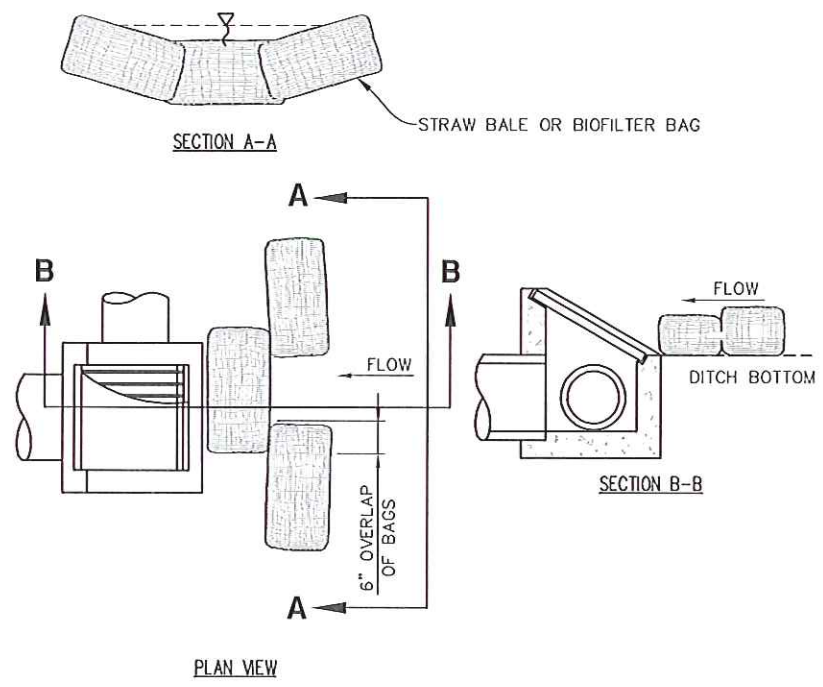
DATE: 05-01-12
 PROJECT: 1090-27
 FILE: C15.3.dwg
 DESIGNED BY: MDR
 DRAWN BY: MDR
 CHECKED BY: JMM
 SURVEYED BY: ACE
 SCALE: AS NOTED
 SHEET: C15.3 OF 22

C15.3



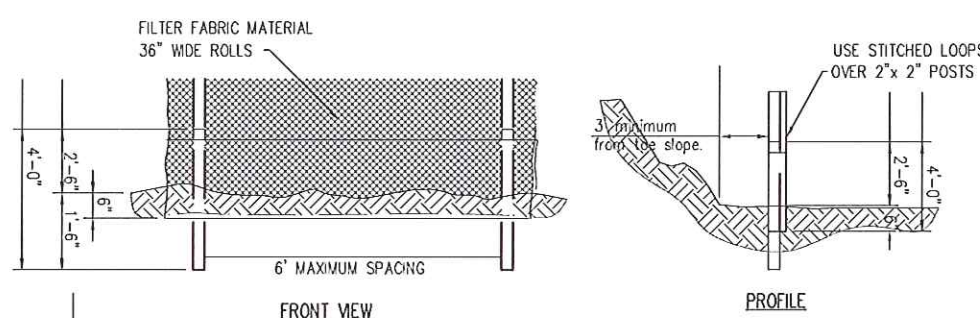
- GENERAL NOTES**
1. EMBED BALES 4 INCHES INTO THE SOIL AND KEY BALES INTO CHANNEL BANKS.
 2. CONSTRUCT POINT 'A' TO BE A MINIMUM OF 6" HIGHER THAN POINT 'B', THE SPILLWAY HEIGHT.
 3. PLACE BALES PERPENDICULAR TO THE FLOW WITH ENDS TIGHTLY ABUTTING. USE STRAW, ROCKS, OR FABRIC TO FILL ANY GAPS & TAMP BACKFILL MATERIAL TO PREVENT EROSION AROUND THE BANKS.
 4. SPILLWAY HEIGHT SHALL NOT EXCEED 24 INCHES ABOVE BOTTOM OF CHANNEL GRADE.
 5. INSPECT CHECK DAMS BEFORE, DURING, AND AFTER EACH RAINFALL EVENT. MAINTAIN AND REPAIR ANY CHECK DAMS PROMPTLY AS REQUIRED TO ALLEVIATE EROSION PROBLEMS.
 6. REMOVE SEDIMENT WHEN DEPTH REACHES ONE-THIRD OF THE SPILLWAY HEIGHT.
 7. REMOVE ACCUMULATED SEDIMENT AND STRAW BAILS PRIOR TO PERMANENT SEEDING OR STABILIZATION.
 8. REMOVED SEDIMENT SHALL BE INCORPORATED INTO THE PROJECT OR DISPOSED OF PROPERLY.
 9. THE MAXIMUM SPACING BETWEEN THE DAMS SHALL BE SUCH THAT THE TOE OF THE UPSTREAM DAM IS AT THE SAME ELEVATION AS THE TOP OF THE DOWNSTREAM SPILLWAY.

1 STRAW BALE CHECK DAM
C15.4 N.T.S.



NOTE
STRAW BALES OR BIOFILTER BAG SHOULD BE STAKED, WHERE APPLICABLE USING TWO (2) 1"x2" WOODEN STAKES, OR APPROVED EQUAL, PER STRAW BALE OR BIOFILTER BAG.

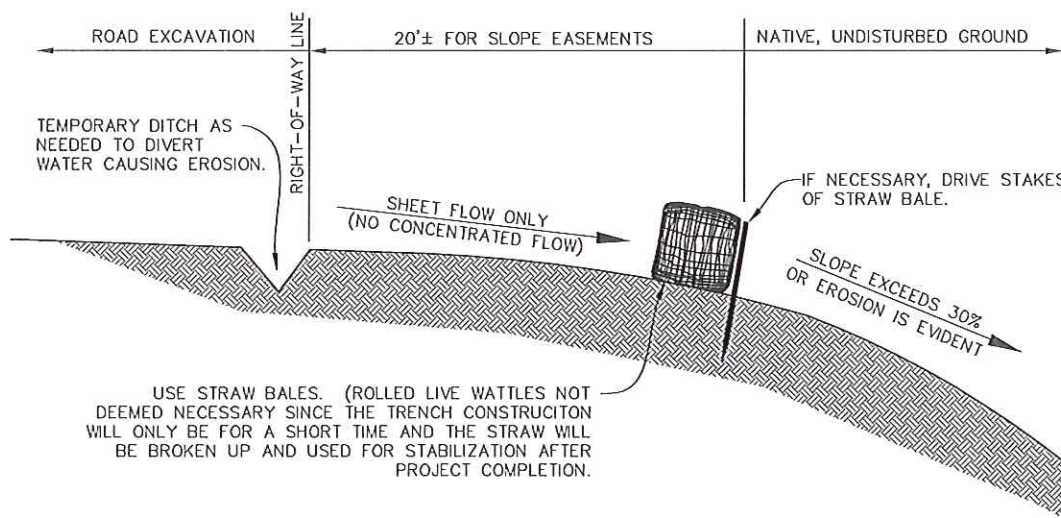
4 DITCH INLET PROTECTION
C15.4 N.T.S.



SLOPE STEEPNESS	MAX. SLOPE LENGTH
2:1	50 FEET
3:1	75 FEET
4:1 & FLATTER	100 FEET

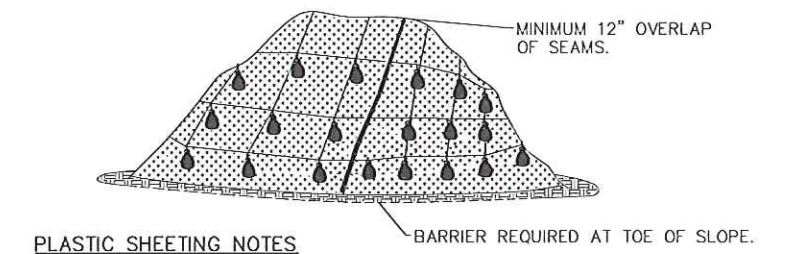
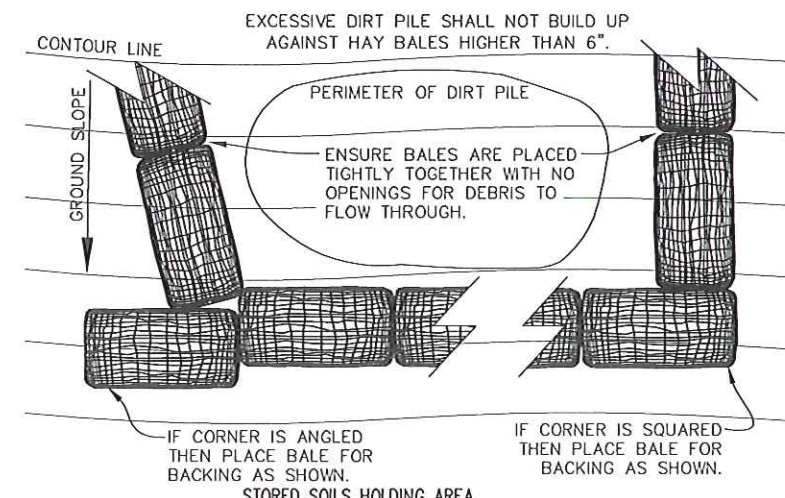
- NOTES**
1. BURY BOTTOM OF FILTER FABRIC 6" VERTICALLY BELOW FINISH GRADE.
 2. USE 2"x 2" FIR, PINE OR STEEL FENCE POSTS TO BE INSTALLED ON UPHILL SIDE OF SLOPE.
 3. COMPACT BOTH SIDES OF BURIED FILTER FABRIC.
 4. SILT FENCE SHALL NOT BE USED FOR CONCENTRATED FLOWS.

2 SEDIMENT CONTROL FENCE
C15.4 N.T.S.



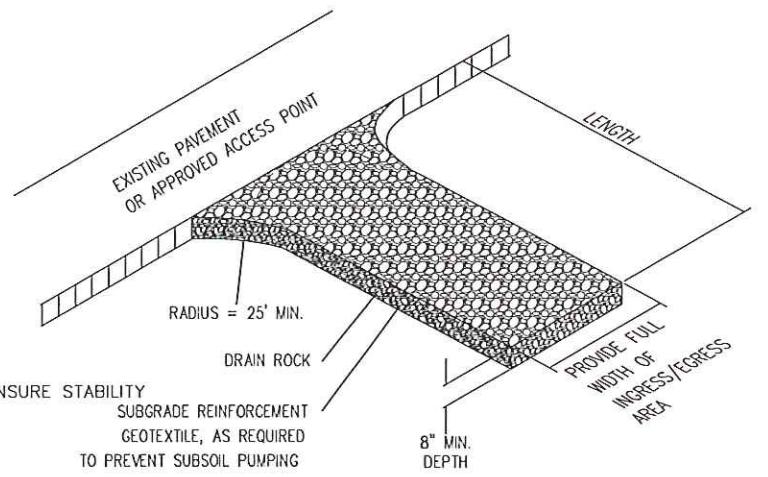
USE STRAW BALES. (ROLLED LIVE WATTLES NOT DEEMED NECESSARY SINCE THE TRENCH CONSTRUCTION WILL ONLY BE FOR A SHORT TIME AND THE STRAW WILL BE BROKEN UP AND USED FOR STABILIZATION AFTER PROJECT COMPLETION.

5 STRAW BALES FOR EXTREME SLOPES
C15.4 N.T.S.



- PLASTIC SHEETING NOTES**
1. MINIMUM 12" OVERLAP OF ALL SEAMS REQUIRED.
 2. BARRIER REQUIRED AT TOE OF STOCK PILE.
 3. COVERING MAINTAINED TIGHTLY IN PLACE BY USING SANDBAGS OR TIRES ON ROPES WITH A MAXIMUM 10' GRID SPACING IN ALL DIRECTIONS.
 4. STORED SOILS MUST BE COVERED WITH PLASTIC SHEETING DURING THE WET WEATHER SHUT DOWN PERIOD.

3 STORED SOILS
C15.4 N.T.S.



- NOTES**
1. LARGE SITE - 50' (LENGTH) X 20' (WIDTH) MINIMUM DIMENSIONS. 8" DEPTH OF DRAIN ROCK, OR CITY APPROVED EQUAL. USE GEOTEXTILE FABRIC, AS REQUIRED TO PREVENT SUBSOIL PUMPING.
 2. TIRE WASH MAY BE REQUIRED IF CONSTRUCTION ENTRANCE DOES NOT PREVENT TRACKING.
 3. USE GREATER THAN 3/4" ROCK. 3/4"-0 ROCK IS NOT ACCEPTABLE. IT WILL NOT PROVIDE PROPER DRAINAGE.

6 CONSTRUCTION ENTRANCE
C15.4 N.T.S.



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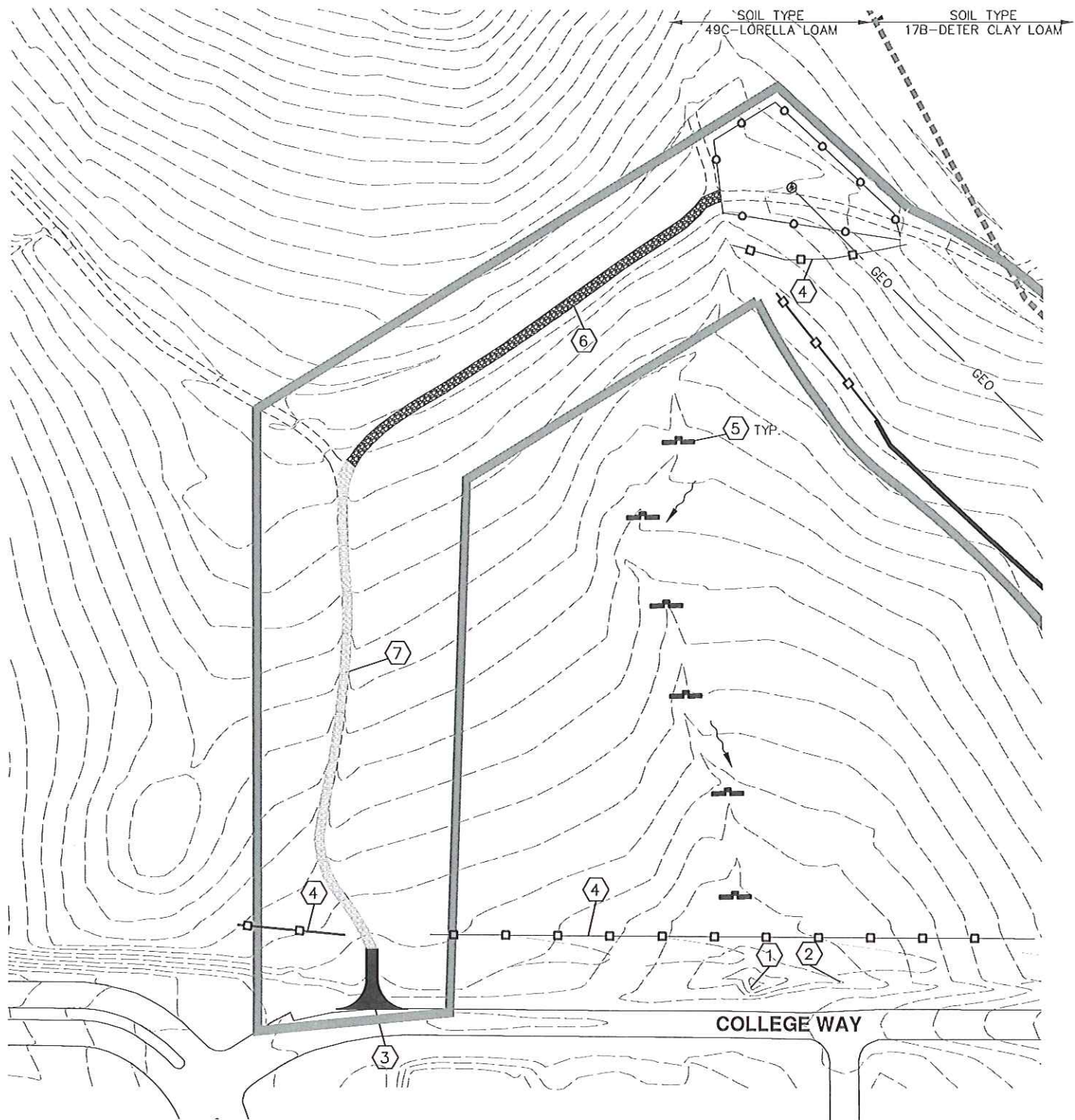
2011 GEOTHERMAL UTILITY CORRIDOR & INJECTION WELL FOR OREGON INSTITUTE OF TECHNOLOGY KLAMATH FALLS, OREGON
EROSION & SEDIMENT CONTROL PLAN
BMP DETAILS

ADKINS CONSULTING ENGINEERS, INC. SINCE 1963
Engineers Planners Surveyors
2950 Shoatto Way · Klamath Falls, Oregon 97603 · (541) 884-6666 · FAX (541) 884-5333
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DATE: 05-01-12
PROJECT: 1090-27
FILE: C15.4.dwg
DESIGNED BY: MDR
DRAWN BY: MDR
CHECKED BY: JMM
SURVEYED BY: ACE
SCALE: N/A
SHEET: C15.4 OF 22

C15.4

EXPIRES 12/31/12



IMPLEMENTATION NOTES
(PRIOR TO COMMENCEMENT OF CONSTRUCTION)

- ① VERIFY THAT DOWNSTREAM PORTIONS OF THE EXISTING STORM SYSTEM ARE CLEAR OF DEBRIS AND ARE FUNCTIONING PROPERLY. IF PIPES, CHANNELS, OR DITCHES ARE CLOGGED OR BLOCKED, CONTRACTOR TO CLEAN OUT DEBRIS UNTIL SYSTEM IS FUNCTIONING PROPERLY.
- ② CHECK TO ENSURE THAT ROADSIDE DITCHES ARE CLEAR OF DEBRIS AND ARE DRAINING PROPERLY PRIOR TO COMMENCEMENT OF TRENCHING.
- ③ CONTRACTOR TO UTILIZE EXISTING GRAVEL ROADWAY FOR SITE CONSTRUCTION ENTRANCE.
- ④ INSTALL SEDIMENT CONTROL FENCE PER DETAIL 2, SHEET C16.4.
- ⑤ INSTALL (3) STRAW BALE CHECK DAMS APPROXIMATELY 60 FEET APART PER DETAIL 1, SHEET C16.4.
- ⑥ INSTALL 12' WIDE GRAVEL ROAD WITH (2") 3/4"-0" ROCK AND (8") 2"-6" ROCK
- ⑦ INSTALL 12' WIDE GRAVEL ROAD WITH (2") 3/4"-0" ROCK

FINALIZATION NOTES
(AFTER COMPLETION OF CONSTRUCTION)

- ⑧ AFTER THE SEEDS BEGIN TO SPROUT, CONTRACTOR SHALL RE-SEED ANY AREAS THAT ARE SPARSE OR LACKING IN NEW GRASS GROWTH.
- ⑨ PROVIDE HYDRAULIC SEEDING TECHNIQUES SUCH AS HYDROMULCHING FOR ALL SLOPES THAT ARE 2:1 OR STEEPER IF AREA IS DISTURBED.
- ⑩ PROVIDE DRY SEEDING TECHNIQUES FOR ALL SLOPES THAT ARE LESS THAN 2:1.

LEGEND

	SOILS DEMARCATION LINE		EDGE OF GRAVEL ROAD
	CONTOUR (2' INTERVALS)		EDGE OF PAVED ROAD
	LIMITS OF DISTURBED AREA		DIRECTION OF STORMWATER FLOW
	SEDIMENT CONTROL FENCE		STRAW BALE CHECK DAM
	CONSTRUCTION FENCE		(2") 3/4"-0" ROCK
	CONSTRUCTION ENTRANCE		(8") 2"-6" ROCK
	(2") 3/4"-0" & (8") 2"-6" ROCK		STRAW BALES FOR EXTREME SLOPE



EXPIRES 12/31/12

NO.	REVISION	DATE	BY

2011 GEOTHERMAL UTILITY CORRIDOR & INJECTION WELL FOR OREGON INSTITUTE OF TECHNOLOGY KLAMATH FALLS, OREGON EROSION & SEDIMENT CONTROL PLAN SITE PLAN

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CONSULTING ENGINEERS, INC.
Engineers ▲ Planners ▲ Surveyors
2950 Shasta Way · Klamath Falls, Oregon 97603 · (541) 884-4668 · FAX (541) 884-5335
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DATE:	05-01-12
PROJECT:	1090-27
FILE:	C16.5.dwg
DESIGNED BY:	MDR
DRAWN BY:	MDR
CHECKED BY:	JMM
SURVEYED BY:	ACE
SCALE:	AS NOTED
SHEET:	C16.5 OF 22

C15.5