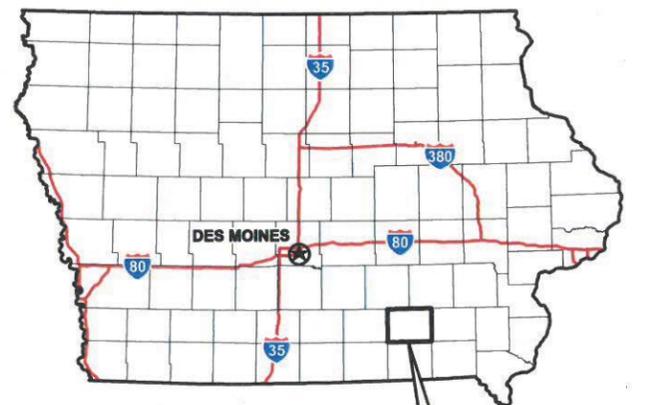


TEACH (IA-155) AML RECLAMATION PROJECT

DIVISION OF SOIL CONSERVATION
IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP
SW1/4, NE1/4, SECTION 9, TOWNSHIP 72N, RANGE 15W, WAPELLO COUNTY, IOWA

FUNDED BY:
U.S. DEPARTMENT OF THE INTERIOR
OFFICE OF SURFACE MINING RECLAMATION AND ENFORCEMENT
GRANT NO: S12AF20039



STATE OF IOWA

WAPELLO COUNTY

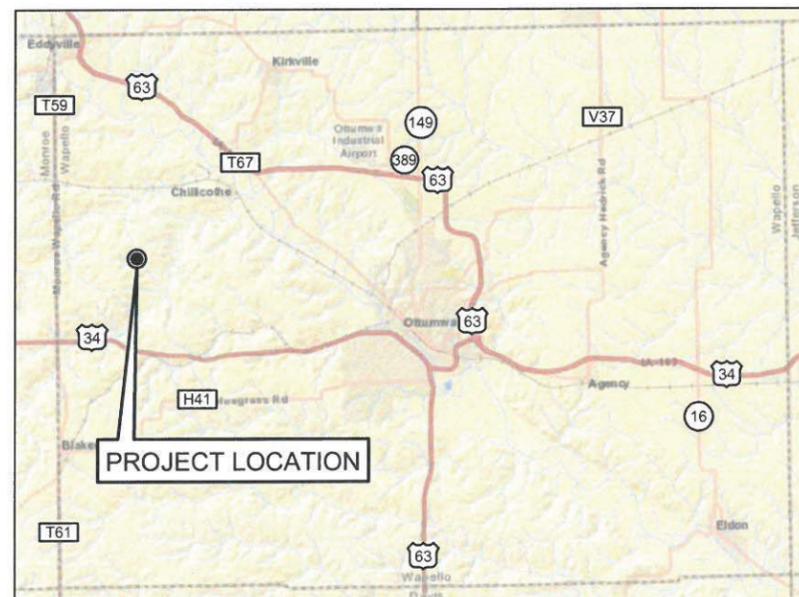


Image Citation: ESRI World Street Map, 2012

WAPELLO COUNTY



Image Citation: ESRI World Street Map, 2012

LOCAL VICINITY

PREPARED FOR:
DIVISION OF SOIL CONSERVATION
IOWA DEPARTMENT OF AGRICULTURE & LAND STEWARDSHIP
HENRY A. WALLACE BUILDING
502 E. 9TH STREET
DES MOINES, IOWA 50319
(515) 281-4246

ENGINEER:
TRIHYDRO CORPORATION
1252 COMMERCE DRIVE
LARAMIE, WYOMING 82070
www.trihydro.com
(P) 307/745.7474 (F) 307/745.7729

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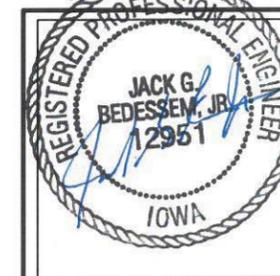
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I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa

Signature: *Jack G. Bedessem, Jr.* Date: 9/24/13
Name (printed or typed): JACK G. BEDESSEM, JR.
License Number: 12951
My license renewal date is: 12/31/2013
Pages or sheets covered by this seal: ENTIRE DOCUMENT

FILE: 21A-PDCOVER201304

CHKD. BY: MD ISSUED: 09/09/2013 REVISED:

DESIGN BY: DRT DRAWN BY: PC

TRIHYDRO CORPORATION
1252 COMMERCE DRIVE
LARAMIE, WYOMING 82070
www.trihydro.com
(P) 307/745.7474 (F) 307/745.7729



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AND LAND STEWARDSHIP
HENRY A. WALLACE BUILDING
502 E. 9TH STREET, DES MOINES, IOWA 50319
(515)281-4246



TEACH (IA-155)
AML RECLAMATION PROJECT
COVER SHEET

GENERAL NOTES:

- ALL IMPROVEMENTS SHOWN ON THESE PLANS SHALL COMPLY WITH THE GENERAL CONDITIONS, STANDARDS, AND SPECIFICATIONS SET FORTH IN PROJECT DOCUMENTS. THESE INCLUDE STANDARD CONSTRUCTION SPECIFICATIONS SET FORTH BY THE DIVISION OF SOIL CONSERVATION AS WELL AS THE SUPPLEMENTAL SPECIFICATIONS ESTABLISHED BY THE ENGINEER. SPECIFICATIONS OR STANDARDS INCORPORATED BY REFERENCE SHALL ALSO BE FOLLOWED.
- OWNERSHIP: THIS DOCUMENT AND THE IDEAS AND DESIGN CONTAINED IN THIS DOCUMENT, ARE AN INSTRUMENT OF PROFESSIONAL SERVICE, AND MAY NOT BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN CONSENT OF THE DIVISION OF SOIL CONSERVATION.
- REFERENCES TO PARTICULAR PRODUCTS, TRADENAMES, OR MANUFACTURERS IS INTENDED FOR CLARITY ONLY AND NOT TO REPRESENT EXCLUSION OR ENDORSEMENT BY THE STATE OF IOWA. EQUIVALENT PRODUCTS OR MATERIALS MAY BE SUITABLE, SUBJECT TO THE APPROVAL OF THE ENGINEER.
- THE CONTRACTOR SHALL NOT DISTURB AREAS OUTSIDE THE CONSTRUCTION LIMITS. THE CONTRACTOR SHALL RECLAIM OR REPAIR ALL DISTURBANCES CREATED OUTSIDE THE CONSTRUCTION LIMITS BY THE CONTRACTOR'S EMPLOYEES OR SUBCONTRACTORS AT THE CONTRACTOR'S EXPENSE.
- THE CONTRACTOR SHALL USE A SINGLE ACCESS TO THE SITE LOCATED OFF OF 220TH AVENUE (AS INDICATED ON THE PLANS) FOR ALL EQUIPMENT, PERSONNEL, AND MATERIALS TRANSPORTATION. THE CONTRACTOR SHALL REPAIR ANY DAMAGE TO THE ACCESS ROAD CAUSED BY THE CONTRACTOR. IF ANY NEW ACCESS OR HAUL ROADS ARE REQUIRED TO COMPLETE THE WORK, THEY SHALL FIRST BE APPROVED IN WRITING BY THE ENGINEER OR DIVISION, AND SHALL BE RECLAIMED ACCORDING TO THE SPECIFICATIONS AT THE COMPLETION OF THE PROJECT.
- ALL TRASH AND DEBRIS GENERATED BY THE CONTRACTOR SHALL BE DISPOSED OF IN A LICENSED AND PERMITTED OFF-SITE LANDFILL. TRASH INCLUDES CIGARETTE BUTTS, BOTTLES, WRAPPERS, AND OTHER MATERIALS. TRASH SHALL NOT BE BURIED ON-SITE.
- THE CONTRACTOR SHALL DECONTAMINATE ALL EQUIPMENT AND SUPPORT VEHICLES PRIOR TO MOBILIZING TO THE SITE. EQUIPMENT AND SUPPORT VEHICLES SHALL BE FREE OF WEEDS, ORGANIC MATERIAL, AND DIRT. THE ENGINEER OR DIVISION WILL INSPECT THE EQUIPMENT AND VEHICLES PRIOR TO ALLOWING THEM ON SITE. ANY EQUIPMENT OR VEHICLES FOUND TO NOT BE ADEQUATELY DECONTAMINATED SHALL NOT BE ALLOWED ON SITE.
- EXISTING SITE TOPOGRAPHY WAS DEVELOPED USING ELEVATION DATA FROM THE STATE OF IOWA'S LIGHT DETECTION AND RANGING (LIDAR) PROGRAM, AND SUPPLEMENTED BY AN ADDITIONAL SURVEY COMPLETED BY SHIVE-HATTERY IN NOVEMBER 2012. THE DRAWINGS DO NOT PURPORT TO SHOW ALL OBJECTS EXISTING ON, ABOVE, OR AROUND THE SITE.

SAFETY NOTE:

THIS PROJECT REQUIRES CONSTRUCTION WORK IN THE VICINITY OF HISTORIC MINE SITES, HIGHWALLS, AND WATER BODIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INVESTIGATING THE SITE CONDITIONS AND SCHEDULING THEIR EQUIPMENT, OPERATIONS, PERSONNEL, AND SAFETY PROCEDURES TO PREVENT ACCIDENTS AND INJURIES. THE CONTRACTOR SHALL FOLLOW ALL APPLICABLE OSHA REGULATIONS.

SPECIAL NOTE:

QUANTITIES OF FERTILIZER AND LIME ARE ESTIMATED FOR BIDDING PURPOSES. ACTUAL QUANTITIES APPLIED WILL BE DETERMINED BY SOIL TESTS.

ESTIMATED QUANTITIES				
ITEM NO.	ITEM	SPEC. SECTION	QTY.	UNITS
1	MOBILIZATION	02100	1	LS
2	SITE CLEARING & PREPARATION	02100	8	AC.
3	OFF-SITE WASTE DISPOSAL	02100	10	TON
4	HYDRATED LIME	02110	2	TON
5	IMPOUNDMENT DISCHARGE	02110	1	LS
6	SILT FENCES - INSTALLATION	02120	1900	LF
7	SILT FENCES - REMOVAL	02120	1900	LF
8	WATTLES - INSTALLATION	02120	1160	LF
9	EXCAVATION	02200	210255	CY
10	FINISH GRADING	02200	27	AC.
11	UNDERCUT EXCAVATION, EARTH DAM	02220	670	CY
12	CONTROLLED GENERAL FILL, EARTH DAM	02220	165	CY
13	RIP RAP (CLASS E)	02300	915	TON
14	EROSION STONE	02300	40	TON
15	FILTER FABRIC	02300	1350	SY
16	GRANULAR BEDDING	02300	165	TON
17	AG LIME, SUBGRADE, 5 TONS ECCE/AC.	02400	140	TON (ECCE)
18	MULCH, SUBGRADE, 5 TONS AC.	02400	28	AC.
19	WETLAND & MAIN CHANNEL R1 FERTILIZER	02400	60	POUND
20	WETLAND UNDERCUT & REPLACEMENT	02400	0.5	AC.
21	MAIN CHANNEL R1 UNDERCUT & REPLACEMENT	02400	0.5	AC.
22	FIELD FENCE	02500	1010	LF
23	AG LIME, SEEDING, 3 TONS ECCE/AC.	02700	81	TON (ECCE)
24	NITROGEN (N)	02700	2700	POUND
25	PHOSPHOROUS (P)	02700	1620	POUND
26	POTASSIUM (K)	02700	2160	POUND
27	INTERIM SEEDING	02700	28	AC.
28	MULCH, SEEDING, 2 TONS/AC.	02700	28	AC.

UTILITY NOTES:

- THE CONTRACTOR SHALL CALL 800-292-8989 PRIOR TO INTRUSIVE ACTIVITIES TO LOCATE ON-SITE UTILITIES. CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UTILITIES. THE ENGINEER DOES NOT MAKE ANY REPRESENTATIONS AS TO EXISTENCE OR NON-EXISTENCE OF UTILITIES WITHIN THE PROJECT AREA.
- CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES AND PUBLIC ROADWAYS, INCLUDING ANY NOT SHOWN ON THESE DRAWINGS. ANY DAMAGE TO EXISTING UTILITIES AND STREETS CAUSED BY TRENCHING AND GRADING OPERATIONS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

CONSTRUCTION NOTES:

- THE CONTRACTOR SHALL NOT REMOVE OR DESTROY ANY SURVEY MONUMENTS WITHOUT PRIOR WRITTEN PERMISSION FROM THE ENGINEER.
- THE SITE GRADING PLAN INCORPORATES LANDFORM GRADING TECHNIQUES. THIS APPROACH RESULTS IN VARIED TERRAIN WITH MULTIPLE CHANNELS AND SUBDRIVES. THE CONTRACTOR IS REQUIRED TO CONSTRUCT THE RECLAMATION SURFACE AS DEPICTED ON THE PLANS. SITE GRADING SHALL BE COMPLETED TO ± 0.3 FEET OF DESIGN ELEVATIONS. THE CONTRACTOR SHALL PROVIDE A GRADE CHECKER FOR SLOPE STAKING AND OFFSETS. THE USE OF GPS MACHINE MOUNTED GRADE CONTROL EQUIPMENT FOR FINISH GRADING IS RECOMMENDED.
- PROPOSED CONTOURS AND GRADES DEPICT THE TOP OF THE FINISH GRADE.
- IN AREAS WHERE PROPOSED GRADING DAYLIGHTS TO EXISTING GROUND, THE CONTRACTOR SHALL CONSTRUCT A SMOOTH TRANSITION BOTH VERTICALLY AND HORIZONTALLY.

CROSS SECTION NOTE (APPLIES TO SHEETS 11 AND 13):

SURFACES SHOWN BELOW THE CURRENT PIT WATER LEVEL ARE APPROXIMATE AND MAY NOT BE REPRESENTATIVE OF ACTUAL CONDITIONS. PIT BOTTOM ELEVATIONS WERE APPROXIMATED DURING A BATHYMETRIC SURVEY IN NOVEMBER 2012.

LEGEND

EXISTING		PROPOSED	
CP1	CONTROL POINT AND DESIGNATION	FENCE DISTURBANCE (TO BE REINSTALLED)	
SW-1	SURFACE WATER SAMPLE LOCATION AND DESIGNATION	FENCE DISTURBANCE (NOT REINSTALLED)	
SS-1	SURFACE SOIL SAMPLE LOCATION AND DESIGNATION	CONSTRUCTION LIMITS	
SB-1	SOIL BORING LOCATION AND DESIGNATION	CONTOURS (2' INTERVAL, 10' INDEX)	
80	INTERSTATE HIGHWAY AND DESIGNATION	CHANNEL	
34	US HIGHWAY AND DESIGNATION	STRAW WATTLE	
16	STATE HIGHWAY AND DESIGNATION	SILT FENCE	
T59	COUNTY ROAD AND DESIGNATION	BURN LIMIT RADIUS	
	TREE OR SHRUB	BURIED GRADE CONTROL STRUCTURE	
	DRAINAGE SYSTEM CULVERT	WETLAND OUTLET GRADE CONTROL STRUCTURE	
	SURFACE CONTOURS (2' INTERVAL, 10' INDEX)	WETLAND MITIGATION AREA	
	ACCESS ROUTE	LOW WATER CROSSING	
	FENCE	PROPOSED STAGING AREA	
	PROPERTY LINE	CLEARING LIMITS	
	OVERHEAD ELECTRIC	TREE PROTECTION AREA	
	APPROXIMATE WATER LEVEL		
	DRAINAGE		
	COMPOST PLACEMENT/ROUGH GRADING		
	DIRT ROAD		
	DELINEATED WETLAND (NOVEMBER 7, 2012)		
	POND		

ABBREVIATIONS			
AMSL	ABOVE MEAN SEA LEVEL	LS	LUMP SUM
AC.	ACRE	MAX.	MAXIMUM
CL	CENTER LINE	MIN.	MINIMUM
CY	CUBIC YARDS	NAD	NORTH AMERICAN DATUM
DIA.	DIAMETER	NAVD	NORTH AMERICAN VERTICAL DATUM
ECCE	EFFECTIVE CALCIUM CARBONATE EQUIVALENT	SF	SQUARE FEET
EL.	ELEVATION	SY	SQUARE YARDS
LF	LINEAR FEET	TYP.	TYPICAL
LiDAR	LIGHT DETECTION AND RANGING	WS ELEV.	WATER SURFACE ELEVATION

FILE: 21A-PDNOTES201304

ISSUED: 09/09/2013

REVISID:

CHKD. BY: MD

DRAWN BY: PC

DESIGN BY: DRT

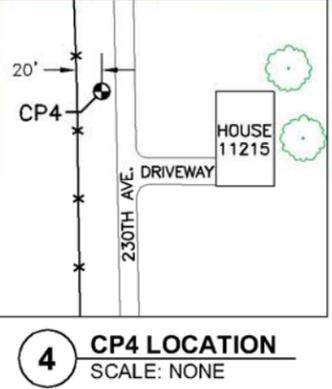
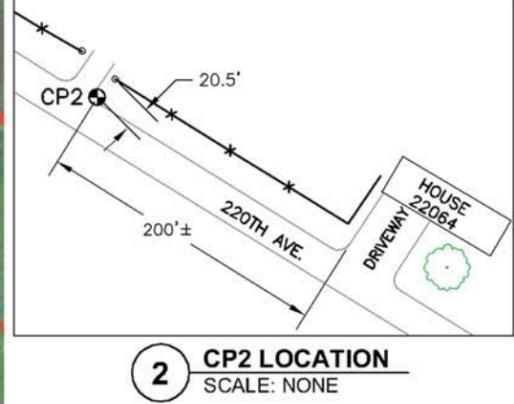
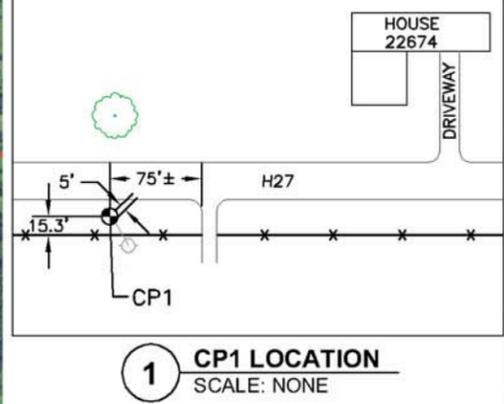
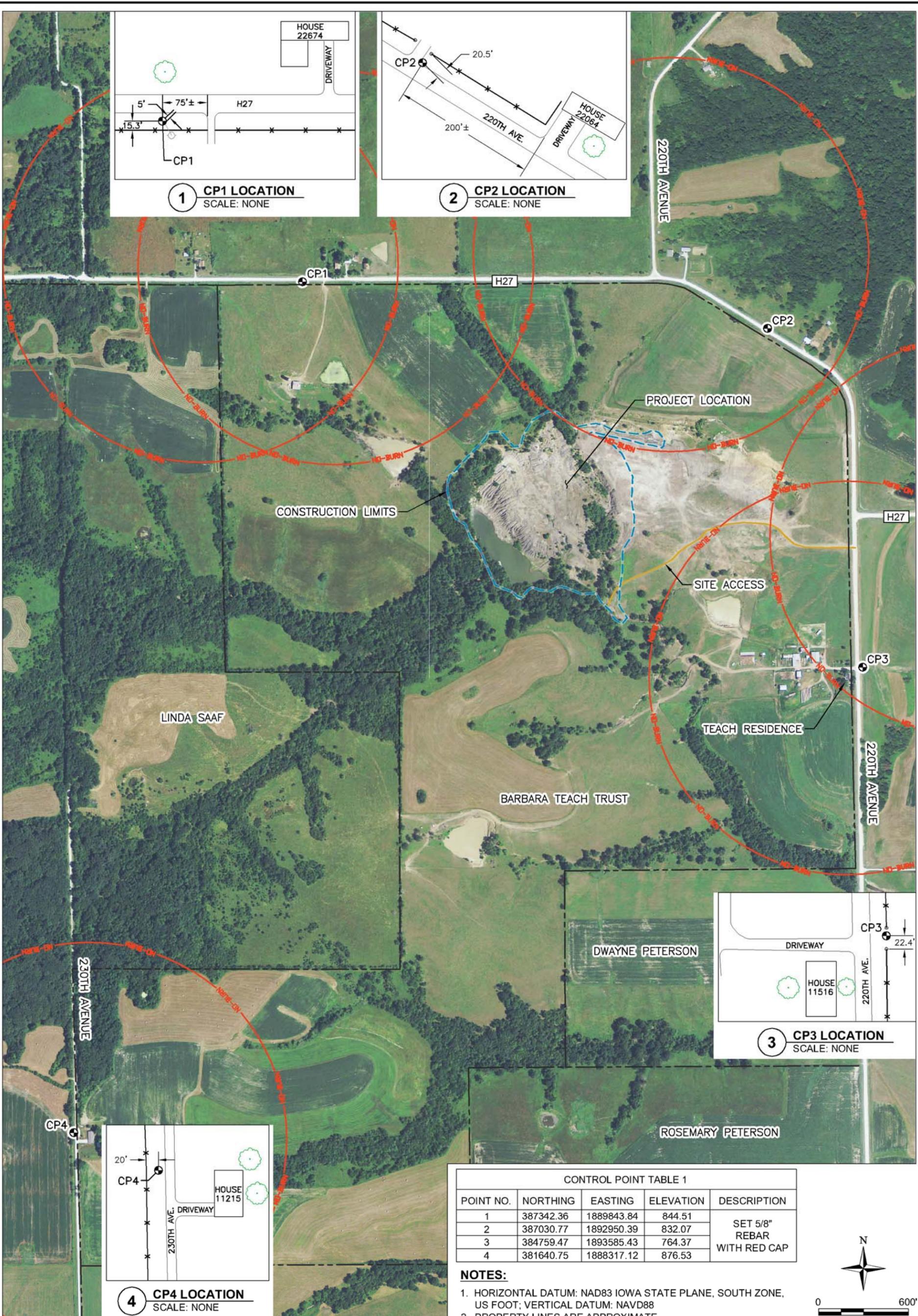
TRIHEDRO CORPORATION
1252 COMMERCE DRIVE
LARAMIE, WYOMING 82070
www.trihydro.com
(P) 307.745.7474 (F) 307.745.7729



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HENRY A. WALLACE BUILDING
502 E. 9th STREET, DES MOINES, IOWA 50319
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TEACH (IA-155)
AML RECLAMATION PROJECT
PROJECT NOTES, LEGEND,
AND QUANTITIES

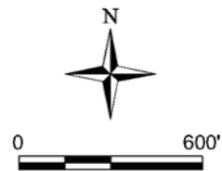


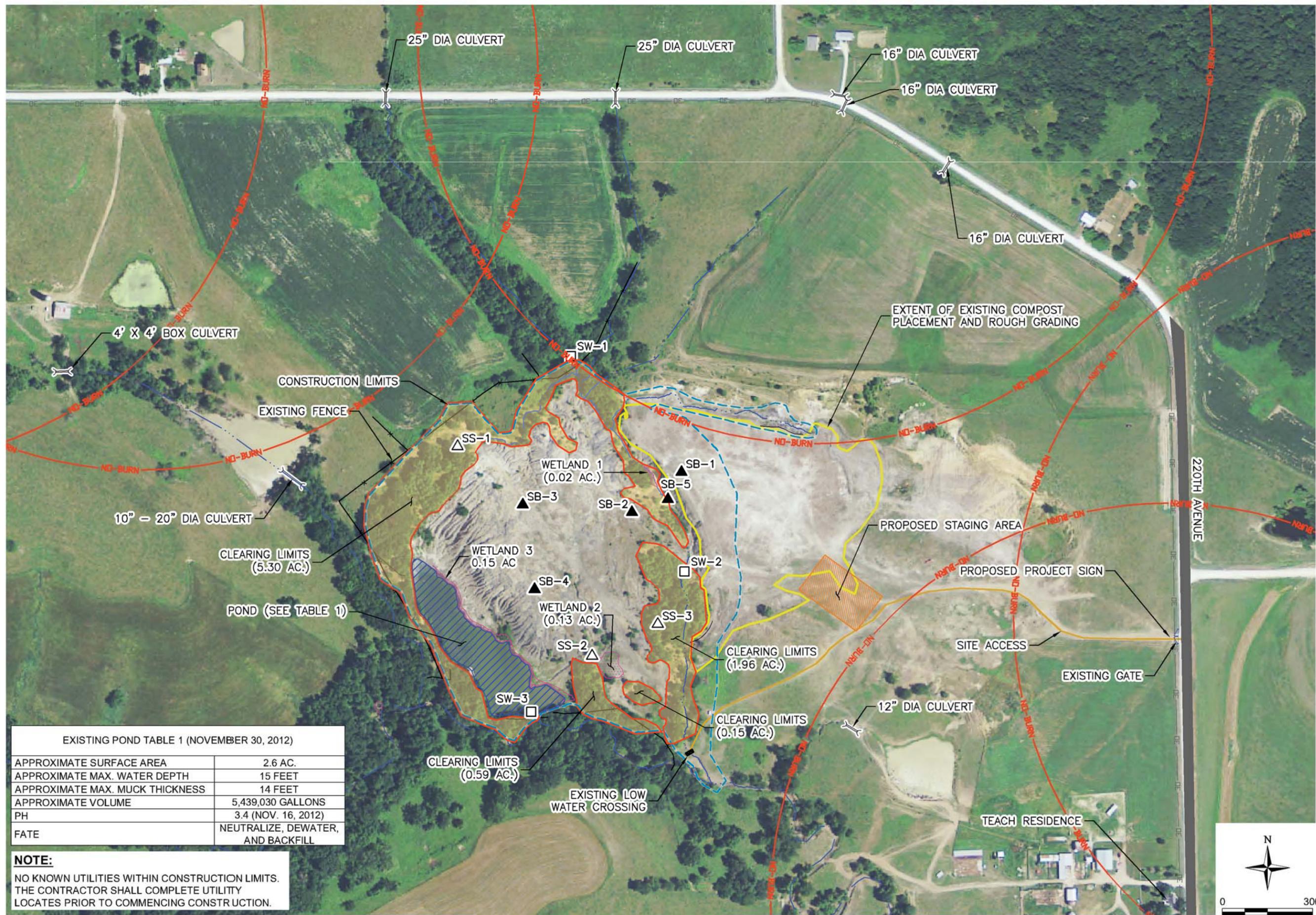
CONTROL POINT TABLE 1

POINT NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	387342.36	1889843.84	844.51	SET 5/8" REBAR WITH RED CAP
2	387030.77	1892950.39	832.07	
3	384759.47	1893585.43	764.37	
4	381640.75	1888317.12	876.53	

NOTES:

- HORIZONTAL DATUM: NAD83 IOWA STATE PLANE, SOUTH ZONE, US FOOT; VERTICAL DATUM: NAVD88
- PROPERTY LINES ARE APPROXIMATE





EXISTING POND TABLE 1 (NOVEMBER 30, 2012)	
APPROXIMATE SURFACE AREA	2.6 AC.
APPROXIMATE MAX. WATER DEPTH	15 FEET
APPROXIMATE MAX. MUCK THICKNESS	14 FEET
APPROXIMATE VOLUME	5,439,030 GALLONS
PH	3.4 (NOV. 16, 2012)
FATE	NEUTRALIZE, DEWATER, AND BACKFILL

NOTE:
 NO KNOWN UTILITIES WITHIN CONSTRUCTION LIMITS.
 THE CONTRACTOR SHALL COMPLETE UTILITY
 LOCATES PRIOR TO COMMENCING CONSTRUCTION.

FILE: 21A-PDSITEEG201304

CHKD. BY: MD ISSUED: 09/09/2013 REVISED:

DESIGN BY: DRT DRAWN BY: PC

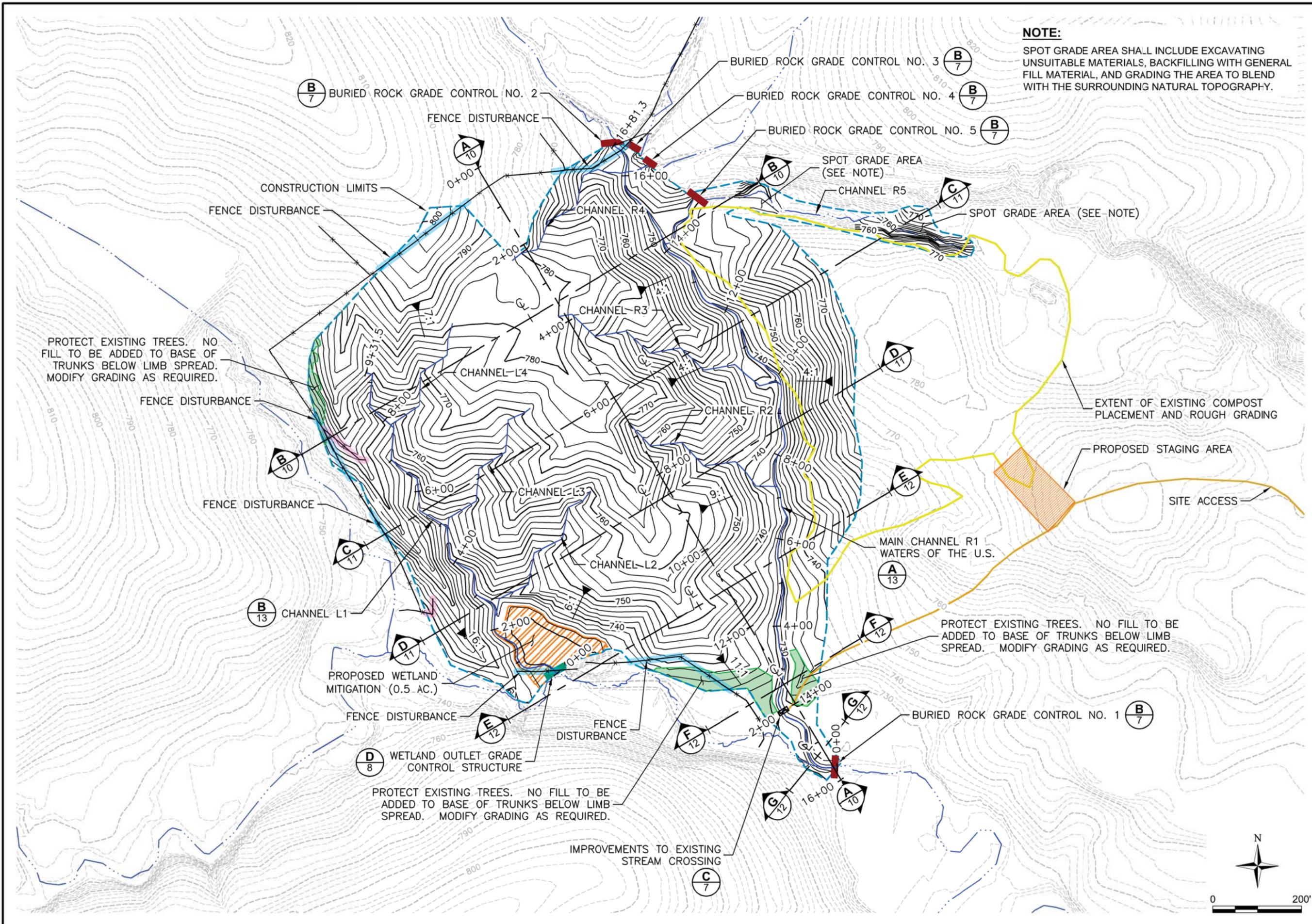
TRIHYRO CORPORATION
 1252 COMMERCE DRIVE
 LARAMIE, WYOMING 82070
 www.trihydro.com
 (P) 307.745.7474 (F) 307.745.7729



DIVISION OF SOIL CONSERVATION
 IOWA DEPARTMENT OF AGRICULTURE
 AND LAND STEWARDSHIP
 HENRY A. WALLACE BUILDING
 502 E. 9th STREET, DES MOINES, IOWA 50319
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TEACH (IA-155)
 AML RECLAMATION PROJECT
 PRE-RECLAMATION PLAN - CLEARING
 AND SITE PREPARATION



NOTE:
 SPOT GRADE AREA SHALL INCLUDE EXCAVATING UNSUITABLE MATERIALS, BACKFILLING WITH GENERAL FILL MATERIAL, AND GRADING THE AREA TO BLEND WITH THE SURROUNDING NATURAL TOPOGRAPHY.

DESIGN BY: DRT	DRAWN BY: PC	CHKD. BY: MD	ISSUED: 09/09/2013	REVISED:	FILE: 21A-PDGRADING201304
TEACH (IA-155) AML RECLAMATION PROJECT		IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP HENRY A. WALLACE BUILDING 502 E. 9th STREET, DES MOINES, IOWA 50319 (515)281-4246		DIVISION OF SOIL CONSERVATION IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP HENRY A. WALLACE BUILDING 502 E. 9th STREET, DES MOINES, IOWA 50319 (515)281-4246	
GRADING PLAN					
SHEET 5 OF 15				TRIHYDRO CORPORATION 1252 COMMERCE DRIVE LARAMIE, WYOMING 82070 www.trihydro.com (P) 307.745.7474 (F) 307.745.7729	