

CITY OF ALBUQUERQUE



December 19, 2014

Ms. Tandy Freel
Bohannon-Huston, Inc.
7500 Jefferson Street NE, Courtyard 1
Albuquerque, NM 87109

**Re: Richmond Switching Substation
Grading and Drainage Plan
Engineer's Stamp date 12-12-14 (H16D083D)**

Dear Ms. Freel,

Based upon the information provided in your submittal received December 12, 2014, the above referenced plan is approved for Grading Permit and for Building Permit. Please attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology.

Prior to Certificate of Occupancy release, Engineer Certification per the DPM checklist will be required.

If you have any questions, you can contact me at 924-3994.

PO Box 1293

Sincerely,

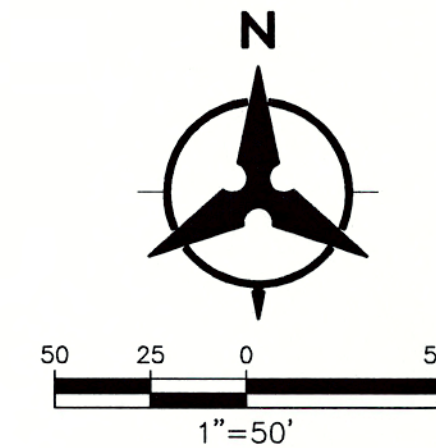
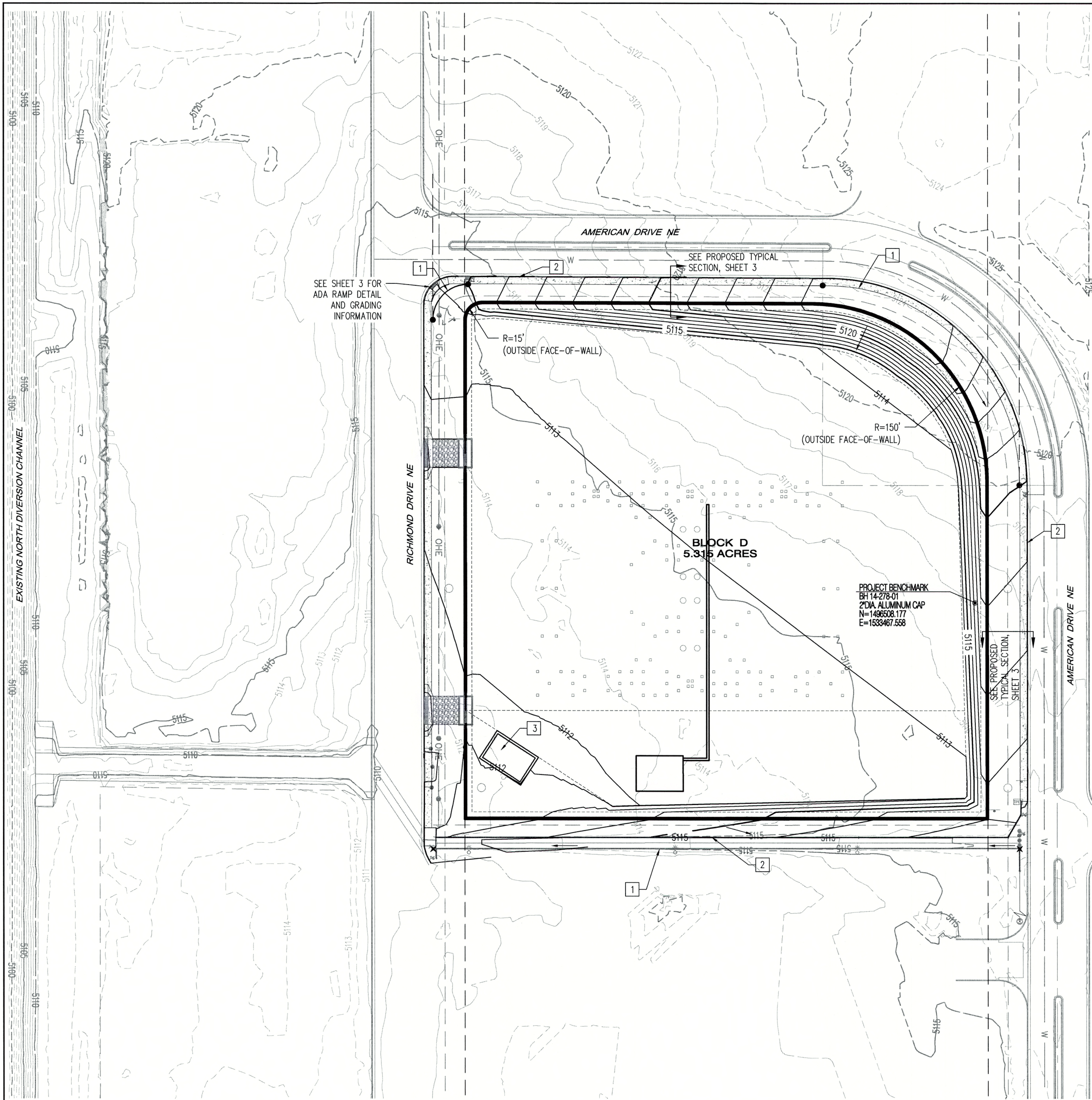
Albuquerque

Amy L. D. Niese, PE
Senior Engineer, Hydrology
Planning Department

New Mexico 87103

C: e-mail

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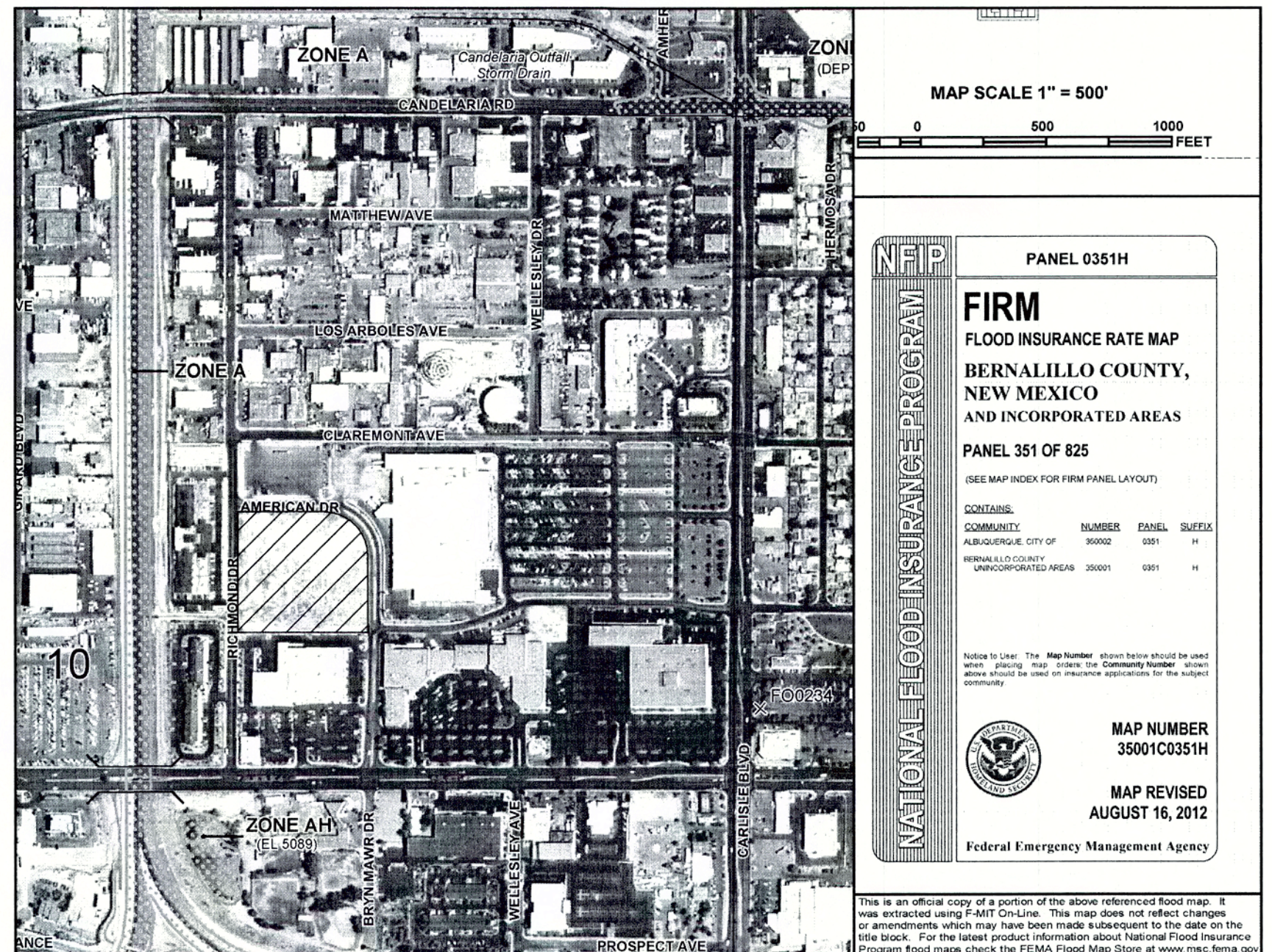


- KEYED NOTES**
1. PROPERTY LINE.
 2. GRADING LIMITS
 3. FIRST FLUSH RETENTION BASIN

- LEGEND**
- EXISTING CONTOUR
 - PROPOSED CONTOUR
 - PROPERTY LINE
 - GRADE BREAK LINE
 - EQUIPMENT FOUNDATION LOCATION
 - STORM WATER FLOW DIRECTION

GENERAL NOTES

1. ALL DIMENSIONS SHOWN FOR SITE WALL ARE MEASURED AT OUTSIDE FACE OF WALL.
2. THIS PLAN IS PRELIMINARY IN NATURE. IT IS NOT TO BE USED FOR CONSTRUCTION PURPOSES.



DRAINAGE MANAGEMENT PLAN

INTRODUCTION
THE PURPOSE OF THIS SUBMITTAL IS TO PROVIDE A GRADING AND DRAINAGE PLAN FOR THE PROPOSED PNM RICHMOND SWITCHING STATION IN SUPPORT OF GRADING PERMIT AND BUILDING PERMIT APPROVAL.

THE PNM RICHMOND SWITCHING STATION IS COMPRISED OF ONE TRACT (BLOCK D OF AMERICAN SQUARE) IS LOCATED AT 2300 RICHMOND DRIVE NE.

EXISTING CONDITIONS
THE EXISTING 5.3 AC SITE IS UNDEVELOPED AND DRAINS FROM THE NORTHEAST TO THE SOUTHWEST CORNER OF THE PROPERTY. FLOW DISCHARGES THROUGH AN EXISTING DRIVEPAD LOCATED AT THE SOUTHWEST OF THE PROPERTY AND CONTINUES INTO THE NORTH DIVERSION CHANNEL VIA AN EXISTING CONCRETE CHANNEL LOCATED WEST OF RICHMOND DRIVE.

THE EXISTING CONCRETE CHANNEL SOUTH OF THE PROPERTY DOES NOT ACCEPT RUNOFF FROM THE PROPERTY.

PER FEMA MAP NUMBER 35001C0351H, THIS SITE IS NOT WITHIN A DESIGNATED FEMA FLOOD ZONE.

PROPOSED CONDITIONS
THE PROPOSED PNM RICHMOND SWITCHING STATION AREA (4.31 AC) WILL BE GRADED TO DIRECT FLOW FROM THE NORTHEAST TO THE SOUTHWEST CORNER OF THE PROPERTY WHERE IT WILL EXIT VIA WEEP HOLES, THROUGH A SCREEN WALL, AND CONTINUES BASED ON HISTORICAL FLOW PATTERNS THROUGH THE CONCRETE CHANNEL AND DISCHARGING TO THE NORTH DIVERSION CHANNEL. SEE EXISTING AND PROPOSED HYDROLOGY CALCULATIONS ON TABLE 1.

A 6" SIDEWALK WILL BE PLACED AT BACK OF CURB ON THE WEST, NORTH, AND EAST SIDES AND BE GRADED AT 1.5% TOWARD THE ADJACENT STREETS. THE REMAINING SLOPE BETWEEN BACK OF SIDEWALK AND FACE OF SCREEN WALL WILL BE LANDSCAPED WITH DEPRESSIONS FOR WATER HARVESTING.

FIRST FLUSH STORM WATER CONTROL MEASURES WERE APPLIED TO THE PROPOSED SITE DEVELOPMENT. PER THE CITY DRAINAGE ORDINANCE, THE 90TH PERCENTILE STORM EVENT, WHICH IS 44 INCHES, IS TO BE MANAGED. REDUCE 0.44 INCH BY THE 0.1 INCH FOR THE INITIAL IMPERVIOUS ABSTRACTION IN TABLE A-6 OF SECTION 22 OF THE DPM. MULTIPLY THE REMAINING 0.34 INCH BY YOUR IMPERVIOUS AREA. THIS IS THE NECESSARY FIRST FLUSH AMOUNT TO RETAIN FOR THE SITE. FOR THE CONCRETE SLAB WITHIN THE SWITCHING STATION WALL, THE FIRST FLUSH VOLUME IS: 1200 SF X (.34 IN / 12 IN/FT) = 34 CF.

CONCLUSION
THE AMERICAN SQUARE MASTER PLAN WAS NOT AVAILABLE FOR REFERENCE AT THE CITY OF ALBUQUERQUE HYDROLOGY DEPARTMENT. PROPOSED CONDITIONS WILL GENERATE LESS FLOW THAN ALLOCATED FOR SITE DEVELOPMENT OF 5.3 AC ZONE C2 LOT WITH 83 PERCENT IMPERVIOUS AREA, AS UTILIZED BY ADJACENT DRAINAGE MASTER PLANS AS SHOWN IN THE TABLE BELOW. SINCE PROPOSED FLOWS ARE LESS THAN ORIGINALLY PLANNED FLOWS FOR THE FULLY DEVELOPED LOTS AS CALCULATED ON TABLE 1, THE EXISTING CONCRETE CHANNEL AND NORTH DIVERSION CHANNEL HAVE CAPACITY TO ACCEPT THE ADDITIONAL FLOW THAT WILL BE GENERATED FROM DEVELOPED CONDITIONS.

TABLE 1 PNM RICHMOND SWITCHING STATION - HYDROLOGIC CALCULATIONS (100yr, 24hr)											
Ultimate Development Conditions Basin Data Table											
This table is based on the 0194 Section 22.1, Zone I2											
SUB-BASIN	Area	Area	Land Treatment Percentages				Q(100)	Q(100)	WT E	V(100) _{imp}	V(100) _{acc}
ID	(SQ. FT)	(AC.)	A	B	C	D	(cfs/ac.)	(cfs)	(inches)	(CF)	(CF)
Existing On-Site											
Switching Station Area (within wall)	187670	4.31	100.0%	0.0%	0.0%	0.0%	1.6	6.7	0.53	8289	8289
Gravel Driveway Areas	1358	0.03	100.0%	0.0%	0.0%	0.0%	1.6	0.0	0.53	60	60
Sidewalk Areas	7882	0.18	100.0%	0.0%	0.0%	0.0%	1.6	0.3	0.53	348	348
Depressed Landscape Areas	34612	0.79	100.0%	0.0%	0.0%	0.0%	1.6	1.2	0.53	1529	1529
Flow currently discharging from property to the street includes proposed switching station, gravel driveways, sidewalk, and area of proposed landscaping.								8.3		10226	10226
Proposed On-Site											
Switching Station Area (within wall)	187670	4.31	0.0%	0.0%	99.4%	0.64%	3.1	13.6	1.14	17771	17821
Gravel Driveway Areas	1358	0.03	0.0%	0.0%	100.0%	0.0%	3.1	0.1	1.13	128	128
Sidewalk Areas	7882	0.18	0.0%	0.0%	0.0%	100.0%	4.7	0.9	2.12	1392	1721
Depressed Landscape Areas	34612	0.79	0.0%	100.0%	0.0%	0.0%	2.3	1.8	0.78	2250	2250
Flow discharging from property to the street as a result of improvements will include proposed switching station, gravel driveways, and sidewalk. Drainage for landscaped area between sidewalk and screen will be self-contained for rainwater harvesting.								14.5		19292	19670
Additional flow generated from proposed improvements:											
Drainage for a Developed C2 Lot	231304	5.31	0.0%	17.0%	0.0%	83.0%	4.3	22.8	1.89	36473	44472

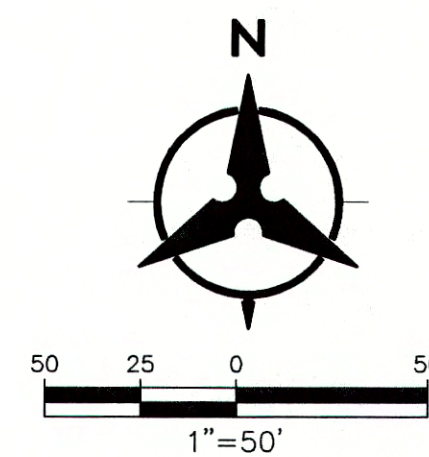
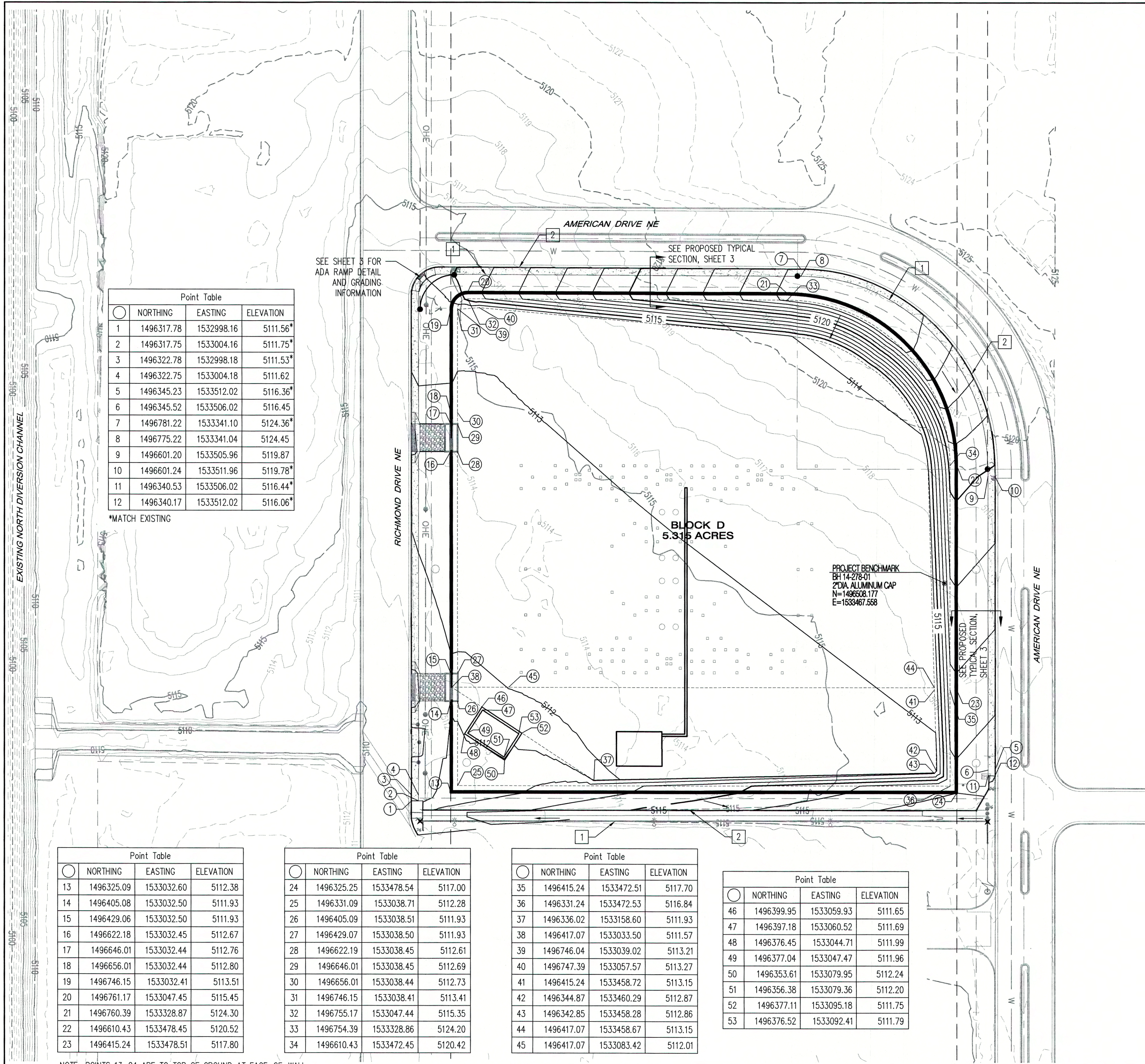
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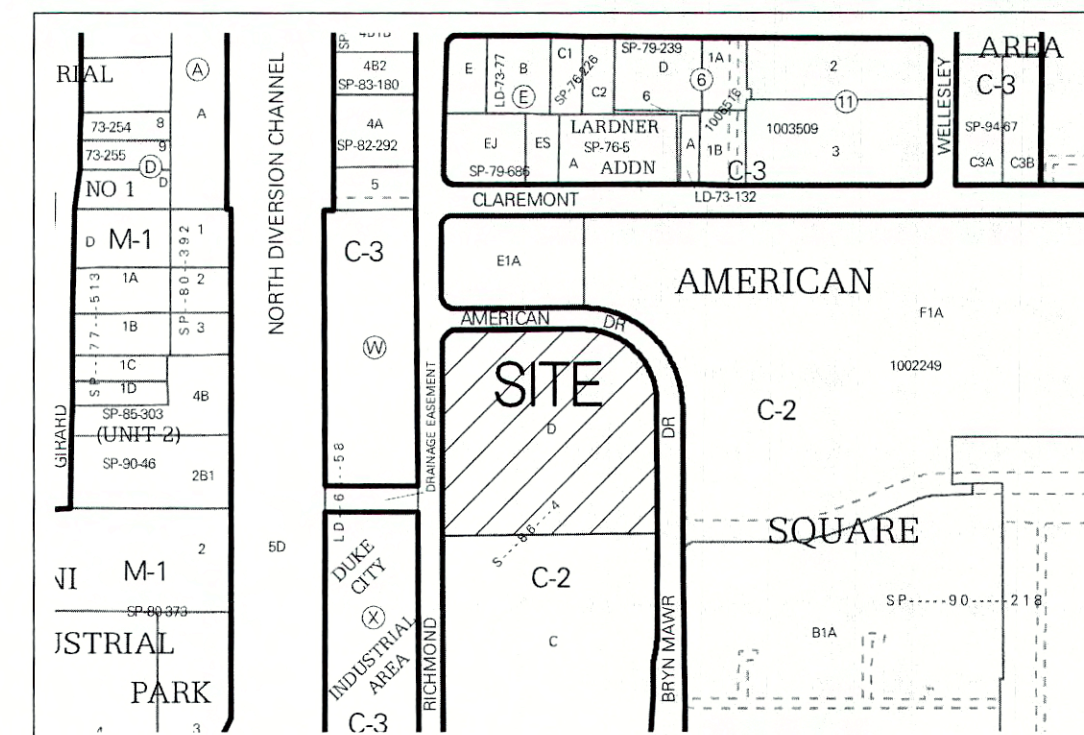
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PNM PUBLIC SERVICE COMPANY OF NEW MEXICO		
DRAINAGE MANAGEMENT PLAN		
PNM - RICHMOND SWITCHING STATION		
DR: JLB	TR:	DATE: Dec 11, 2014
CKD: TMF	OK:	SCALE: 1"=50'
APP:	ACAD FILE:	
REV. NO.	SBD-5802	SHEET 1 OF 3



- KEYED NOTES
- PROPERTY LINE.
 - GRADING LIMITS



VICINITY MAP
N.T.S.
ZONE ATLAS PAGE H-16-Z

GENERAL NOTES

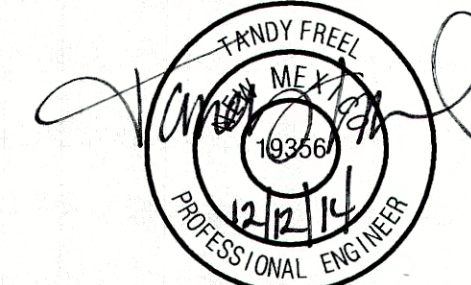
- ALL WORK DETAILED ON THESE PLANS AND PERFORMED UNDER THIS CONTRACT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND THE PROJECT GEOTECHNICAL REPORT. WHERE APPLICABLE, CITY OF ALBUQUERQUE PUBLIC WORKS STANDARDS SHALL APPLY.
- THE CONTRACTOR SHALL ABIDE BY ALL LOCAL, STATE, AND FEDERAL LAWS, RULES AND REGULATIONS WHICH APPLY TO THE CONSTRUCTION OF THESE IMPROVEMENTS, INCLUDING EPA REQUIREMENTS WITH RESPECT TO STORM WATER DISCHARGE.
- PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL FIELD VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL POTENTIAL OBSTRUCTIONS INCLUDING ALL UNDERGROUND UTILITIES. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION OBSERVER OR ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
- TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, THE CONTRACTOR SHALL CONTACT LINE LOCATING SERVICE FOR LOCATION OF EXISTING UTILITIES.
- ALL ELECTRICAL, TELEPHONE, CABLE TV, GAS AND OTHER UTILITY LINES, CABLES, AND APPURTENANCES ENCOUNTERED DURING CONSTRUCTION THAT REQUIRE RELOCATION, SHALL BE COORDINATED WITH THAT UTILITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF ALL NECESSARY UTILITY ADJUSTMENTS. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR DELAYS OR INCONVENIENCES CAUSED BY UTILITY COMPANY WORK CREWS. THE CONTRACTOR MAY BE REQUIRED TO RESCHEDULE HIS ACTIVITIES TO ALLOW UTILITY CREWS TO PERFORM THEIR REQUIRED WORK.
- THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING ALL EXISTING UTILITY LINES WITHIN THE CONSTRUCTION AREA. ANY DAMAGE TO EXISTING FACILITIES CAUSED BY CONSTRUCTION ACTIVITY SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE AND APPROVED BY THE CONSTRUCTION OBSERVER.
- CONSTRUCTION ACTIVITY SHALL BE LIMITED TO THE PROPERTY AND/OR PROJECT LIMITS. ANY DAMAGE TO ADJACENT PROPERTIES RESULTING FROM THE CONSTRUCTION PROCESS SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE.
- OVERNIGHT PARKING OF CONSTRUCTION EQUIPMENT SHALL NOT OBSTRUCT DRIVEWAYS OR DESIGNATED TRAFFIC LANES. THE CONTRACTOR SHALL NOT STORE ANY EQUIPMENT OR MATERIAL WITHIN THE PUBLIC RIGHT-OF-WAY.
- THE CONTRACTOR SHALL OBTAIN ALL THE NECESSARY PERMITS FOR THE PROJECT PRIOR TO COMMENCING CONSTRUCTION (I.E., BARRICADING, TOPSOIL DISTURBANCE, EXCAVATION PERMITS, EPA STORM WATER PERMITS, ETC.).
- ALL PROPERTY CORNERS DESTROYED DURING CONSTRUCTION SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE. ALL PROPERTY CORNERS MUST BE RESET BY A REGISTERED LAND SURVEYOR.
- THE CONTRACTOR SHALL PREPARE A CONSTRUCTION TRAFFIC CONTROL AND SIGNING PLAN AND OBTAIN APPROVAL OF SUCH PLAN FROM THE CITY OF ALBUQUERQUE, TRAFFIC ENGINEERING DEPARTMENT, PRIOR TO BEGINNING ANY CONSTRUCTION WORK ON OR ADJACENT TO EXISTING STREETS.
- ALL BARRICADES AND CONSTRUCTION SIGNING SHALL CONFORM TO APPLICABLE SECTIONS OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD), US DEPARTMENT OF TRANSPORTATION, LATEST EDITION.
- THE CONTRACTOR SHALL MAINTAIN ALL CONSTRUCTION BARRICADES AND SIGNING AT ALL TIMES. THE CONTRACTOR SHALL VERIFY THE PROPER LOCATION OF ALL BARRICADES AT THE END AND BEGINNING OF EACH DAY.
- THE CONTRACTOR SHALL TAKE ALL STEPS NECESSARY TO CONFORM WITH EPA REQUIREMENTS, INCLUDING COMPLIANCE WITH NPDES PHASE 2 REQUIREMENTS.

GRADING NOTES

- EXCEPT AS PROVIDED HEREIN, GRADING SHALL BE PERFORMED AT THE ELEVATIONS AND IN ACCORDANCE WITH THE DETAILS SHOWN ON THIS PLAN.
- THE COST FOR REQUIRED CONSTRUCTION DUST AND EROSION CONTROL MEASURES SHALL BE INCIDENTAL TO THE PROJECT COST.
- ALL WORK RELATIVE TO FOUNDATION CONSTRUCTION, SITE PREPARATION, AND PAVEMENT INSTALLATION, AS SHOWN ON THIS PLAN, SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE "GEOTECHNICAL INVESTIGATION". ALL OTHER WORK SHALL, UNLESS OTHERWISE STATED OR PROVIDED FOR HEREON, BE CONSTRUCTED IN ACCORDANCE WITH THE PROJECT, (FIRST PRIORITY) SPECIFICATIONS, AND/OR THE CITY OF ALBUQUERQUE (COA) STANDARD SPECIFICATIONS FOR PUBLIC WORKS (SECOND PRIORITY).
- EARTH SLOPES SHALL NOT EXCEED 4 HORIZONTAL TO 1 VERTICAL UNLESS SHOWN OTHERWISE.
- IT IS THE INTENT OF THESE PLANS THAT THIS CONTRACTOR SHALL NOT PERFORM ANY WORK OUTSIDE OF THE PROPERTY BOUNDARIES EXCEPT AS REQUIRED BY THIS PLAN.
- THE CONTRACTOR IS TO ENSURE THAT NO SOIL ERODES FROM THE SITE ONTO ADJACENT PROPERTY OR PUBLIC RIGHT-OF-WAY.
- A DISPOSAL SITE FOR ANY & ALL EXCESS EXCAVATION MATERIAL, AND UNSUITABLE MATERIAL AND/OR A BORROW SITE CONTAINING ACCEPTABLE FILL MATERIAL SHALL BE OBTAINED BY THE CONTRACTOR IN COMPLIANCE WITH APPLICABLE ENVIRONMENTAL REGULATIONS AND APPROVED BY THE OBSERVER. ALL COSTS INCURRED IN OBTAINING A DISPOSAL OR BORROW SITE AND HAUL TO OR FROM SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT AND NO SEPARATE MEASUREMENT OR PAYMENT SHALL BE MADE.
- PAVING AND ROADWAY GRADES SHALL BE +/- 0.1' FROM PLAN ELEVATIONS.
- VERIFY ALL ELEVATIONS SHOWN ON PLAN FROM BASIS OF ELEVATION CONTROL STATION PRIOR TO BEGINNING CONSTRUCTION.
- SPOT ELEVATIONS SHOWN WITHIN SUBSTATION WALL ARE TO TOP OF SUBGRADE. CONTRACTOR SHALL PLACE GRAVEL WITHIN SUBSTATION WALLS AFTER GRADING IS COMPLETE PER THE ELEVATIONS SHOWN ON THIS SHEET.

LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPERTY LINE
- GRADE BREAK LINE
- EQUIPMENT FOUNDATION LOCATION
- STORM WATER FLOW DIRECTION



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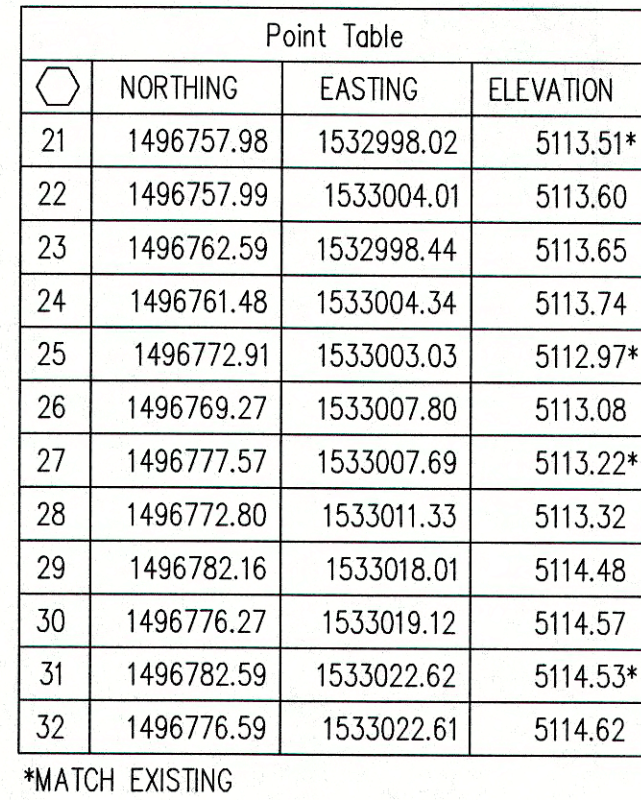
PNM PUBLIC SERVICE COMPANY OF NEW MEXICO

GRADING AND DRAINAGE PLAN

PNM - RICHMOND SWITCHING STATION

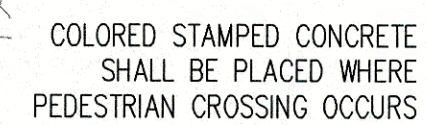
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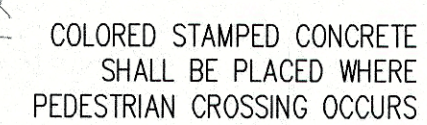


SCALE: 1"=5'

N.T.S.



SCALE: 1"=10'



SCALE: 1"=10'

Point Table				
○	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	1496656.02	1532998.13	512.74*	EXISTING BOC
2	1496656.02	1533001.13	512.78	PROPOSED SW
3	1496646.06	1532997.52	512.00*	EXISTING FL
4	1496646.02	1533001.14	512.05	PED CROSSING
5	1496646.02	1533005.44	512.42	PROP DRIVEPAD
6	1496622.15	1532997.55	511.81*	EXISTING FL
7	1496622.15	1533001.17	511.86	PED CROSSING
8	1496622.12	1533005.45	512.24	PROP DRIVEPAD
9	1496612.15	1532998.18	512.40*	EXISTING BOC
10	1496612.15	1533001.18	512.45	PROPOSED SW
11	1496439.06	1532998.20	511.47*	EXISTING BOC
12	1496439.06	1533001.20	511.51	PROPOSED SW
13	1496429.06	1532997.57	510.75*	EXISTING FL
14	1496429.06	1533001.19	510.81	PED CROSSING
15	1496429.06	1533005.50	511.18	PROP DRIVEPAD
16	1496405.08	1532997.56	510.64*	EXISTING FL
17	1496405.08	1533001.19	510.69	PED CROSSING
18	1496405.07	1533005.51	511.07	PROP DRIVEPAD
19	1496395.08	1532998.18	511.26*	EXISTING BOC
20	1496395.08	1533001.18	511.30	PROPOSED SW

A circular professional engineer seal for Tandy Freeland, New Mexico, No. 19356. The seal includes the text "TANDY FREEL", "NEW MEXICO", "19356", and "PROFESSIONAL ENGINEER". The date "2/2/14" is stamped in the center. The seal is signed with a cursive signature and has a large "X" drawn over it.

REVISION		
NO.	DATE	BY

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