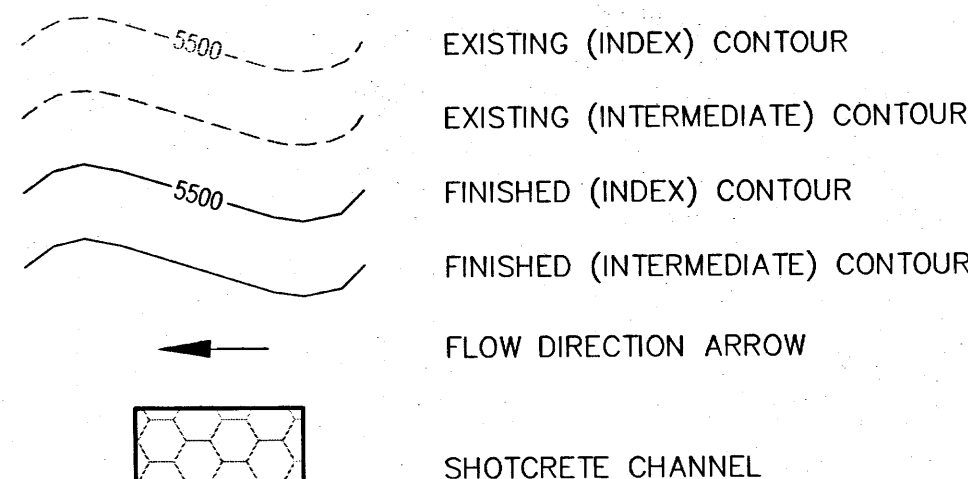


# GENERAL NOTES

- PRIOR TO ANY CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE LOCATION OF ALL POTENTIAL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AS SOON AS POSSIBLE TO RESOLVE THE CONFLICT WITH A MINIMUM AMOUNT OF DELAY.
- ALL WORK ON THIS PLAN SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS, RULES AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH.
- IF ANY UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES ARE SHOWN ON THESE DRAWINGS, THEY ARE SHOWN IN AN APPROXIMATE LOCATION ONLY, AND LINES MAY EXIST WHERE NONE ARE SHOWN, THE LOCATION IS BASED UPON INFORMATION PROVIDED BY THE UTILITY OWNER OR FROM EXISTING PLANS, AND THIS INFORMATION MAY BE INCOMPLETE, OR OBSOLETE AT THE TIME OF CONSTRUCTION. THE ENGINEER HAS NOT UNDERTAKEN ANY FIELD VERIFICATION OF THESE LOCATIONS, LINE SIZES OR MATERIAL TYPE, MAKES NO REPRESENTATION THERETO, AND ASSUMES NO RESPONSIBILITY OR LIABILITY THEREFOR. THE CONTRACTOR SHALL INFORM ITSELF OF THE LOCATION OF ANY UTILITY LINE, PIPELINE OR UNDERGROUND INSTALLATION IN OR NEAR THE AREA IN ADVANCE OF AND DURING ANY EXCAVATION WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE CAUSED BY ITS FAILURE TO LOCATE, IDENTIFY AND PRESERVE ANY AND ALL EXISTING UTILITIES, PIPELINES AND UNDERGROUND FACILITIES. IN PLANNING AND CONDUCTING EXCAVATIONS, THE CONTRACTOR SHALL COMPLY WITH ALL STATE STATUTES, MUNICIPAL AND LOCAL ORDINANCES, RULES AND REGULATIONS, IF ANY, PERTAINING TO THE LOCATION OF THESE LINES AND FACILITIES.
- THE CONTRACTOR SHALL INSURE THAT NO SOIL ERODES FROM THE SITE INTO PUBLIC RIGHTS-OF-WAY OR ONTO PRIVATE PROPERTY. THIS CAN BE ACHIEVED BY CONSTRUCTING TEMPORARY BERMS AND BY WETTING THE SOIL TO KEEP IT FROM BLOWING.
- THE CONTRACTOR SHALL OBTAIN ANY AND ALL PERMITS REQUIRED BY CITY OF ALBUQUERQUE FOR THE COMPLETION OF THE WORK PRIOR TO BEGINNING CONSTRUCTION.
- DISTURBED GROUND NOT INCLUDED IN THE PROPOSED DRIVEWAY OR SHOWN AS LANDSCAPING SHALL BE RESEDED IN ACCORDANCE WITH THE APWA STANDARD SPECIFICATIONS (1101 & 1102). THE REQ'D "LOOSENING" OF THE SEEDBED AND RESEEDING SHALL BE COMPLETED AS SOON AS PRACTICAL FOLLOWING GRADING OPERATIONS.
- THE CONTRACTOR SHALL HAUL THE EXCESS DIRT FROM THE POND OFF-SITE.

## LEGEND

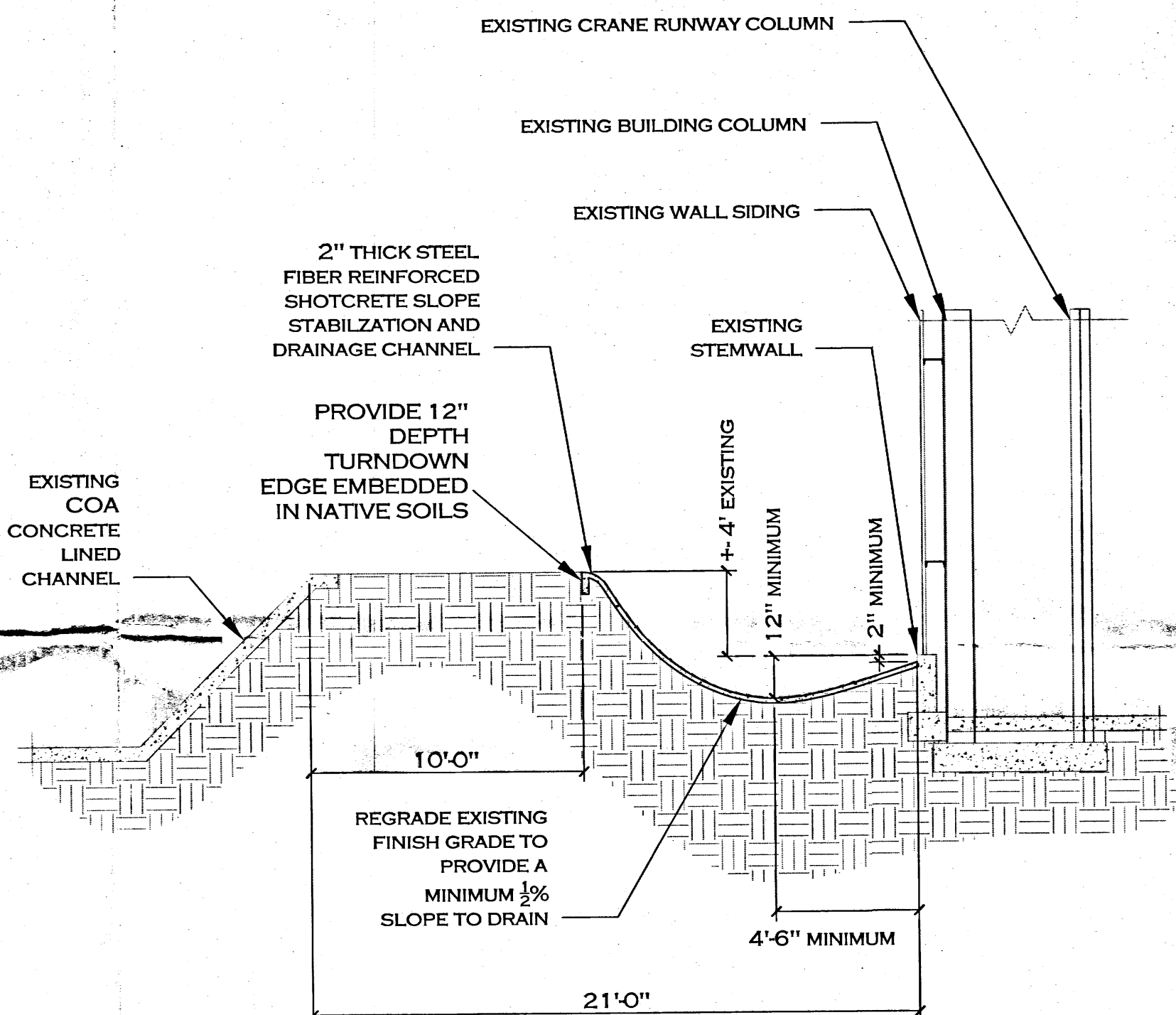


## SCOPE OF WORK

PROJECT INCLUDES MINOR EXCAVATION OF EXISTING SWALE ADJACENT TO BUILDING, GRADING OF DETENTION POND ON SOUTH SIDE OF BUILDING, AND INSTALLATION OF SHOTCRETE SWALE TO CONVEY ROOF DRAINAGE SOUTH TO DETENTION POND.

## SHOTCRETE CHANNEL CROSS SECTION

### SECTION A-A



## DRAINAGE CERT W/ SURVEY WORK BY OTHERS

### DRAINAGE CERTIFICATION

I, Reza Afsharpour, NMPE 11214 OF THE FIRM Ash Engineering LLC HEREBY CERTIFY THAT THIS PROJECT HAS BEEN GRADED AND WILL DRAIN IN SUBSTANTIAL COMPLIANCE WITH AND IN ACCORDANCE WITH THE DESIGN INTENT OF THE APPROVED PLAN DATED 4-12-2011. THE RECORD INFORMATION EDITED ONTO THE ORIGINAL DESIGN DOCUMENT HAS BEEN OBTAINED BY NMPE 11214 OF THE FIRM Ash Engineering LLC. I FURTHER CERTIFY THAT I HAVE PERSONALLY VISITED THE PROJECT SITE ON 6-14-2011 AND HAVE DETERMINED BY VISUAL INSPECTION THAT THE SURVEY DATA PROVIDED IS REPRESENTATIVE OF ACTUAL SITE CONDITIONS AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. THIS CERTIFICATION IS SUBMITTED IN SUPPORT OF A REQUEST FOR Blanco Metals As-built plans.

(DESCRIBE ANY EXCEPTIONS AND/OR QUALIFICATIONS HERE IN A SEPARATE PARAGRAPH) The 12" thick shotcrete was changed to 6" thick as approved by Mr. Alfred Galtos (see attached correspondence)

(DESCRIBE ANY DEFICIENCIES AND/OR REQUIRED CORRECTIONS HERE IN A SEPARATE PARAGRAPH)

THE RECORD INFORMATION PRESENTED HEREON IS NOT NECESSARILY COMPLETE AND INTENDED ONLY TO VERIFY SUBSTANTIAL COMPLIANCE OF THE GRADING AND DRAINAGE ASPECTS OF THIS PROJECT. THOSE RELYING ON THIS RECORD DOCUMENT ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE USING IT FOR ANY OTHER PURPOSE.

Reza Afsharpour, NMPE 11214  
XXXXXXX XXXX, NMPE XXXX  
DATE 6-14-2011

APPROVED BY THE EXECUTIVE COMMITTEE ON 4/9/02

## DRAINAGE CALCULATIONS

### SITE CHARACTERISTICS

- PRECIPITATION ZONE = 2
- TOTAL PROJECT AREA (At) = 6,600 SF / 0.152 AC
- EXISTING LAND TREATMENT
 

TREATMENT	AREA(SF/AC)	%
A	6600/0.152	100
- DEVELOPED LAND TREATMENT
 

TREATMENT	AREA(SF/AC)	%
A	2500/0.057	27
C	4100/0.094	63

### EXISTING CONDITIONS

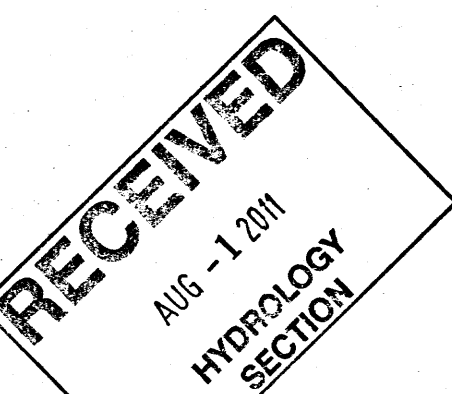
- PROJECT AREA
  - VOLUME  
 $Ew = (EAAA + EABAB + ECAC + EDAD) / At$   
 $Ew = ((0.78 + 0.152) / 0.152) = 0.78$  IN  
 $V100 = (Ew / 12) At = (0.78 / 12) * 0.152 = 0.010$  AC-FT = 431 CF
- PEAK DISCHARGE  
 $Qp = QpAAA + QpBAB + QpCAC + QpDAD$   
 $Qp = Q100 = (2.28 + 0.152) = 0.35$  CFS

### DEVELOPED CONDITIONS

- PROJECT AREA
  - VOLUME  
 $Ew = (EAAA + EABAB + ECAC + EDAD) / At$   
 $Ew = ((1.13 + 0.057) + (2.12 + 0.094) / 0.152 = 1.74$  IN  
 $V100 = (Ew / 12) At = (1.74 / 12) * 0.152 = 0.220$  AC-FT = 959 CF
- PEAK DISCHARGE  
 $Qp = QpAAA + QpBAB + QpCAC + QpDAD$   
 $Qp = Q100 = (3.14 + 0.057) + (4.70 + 0.094) = 0.62$  CFS

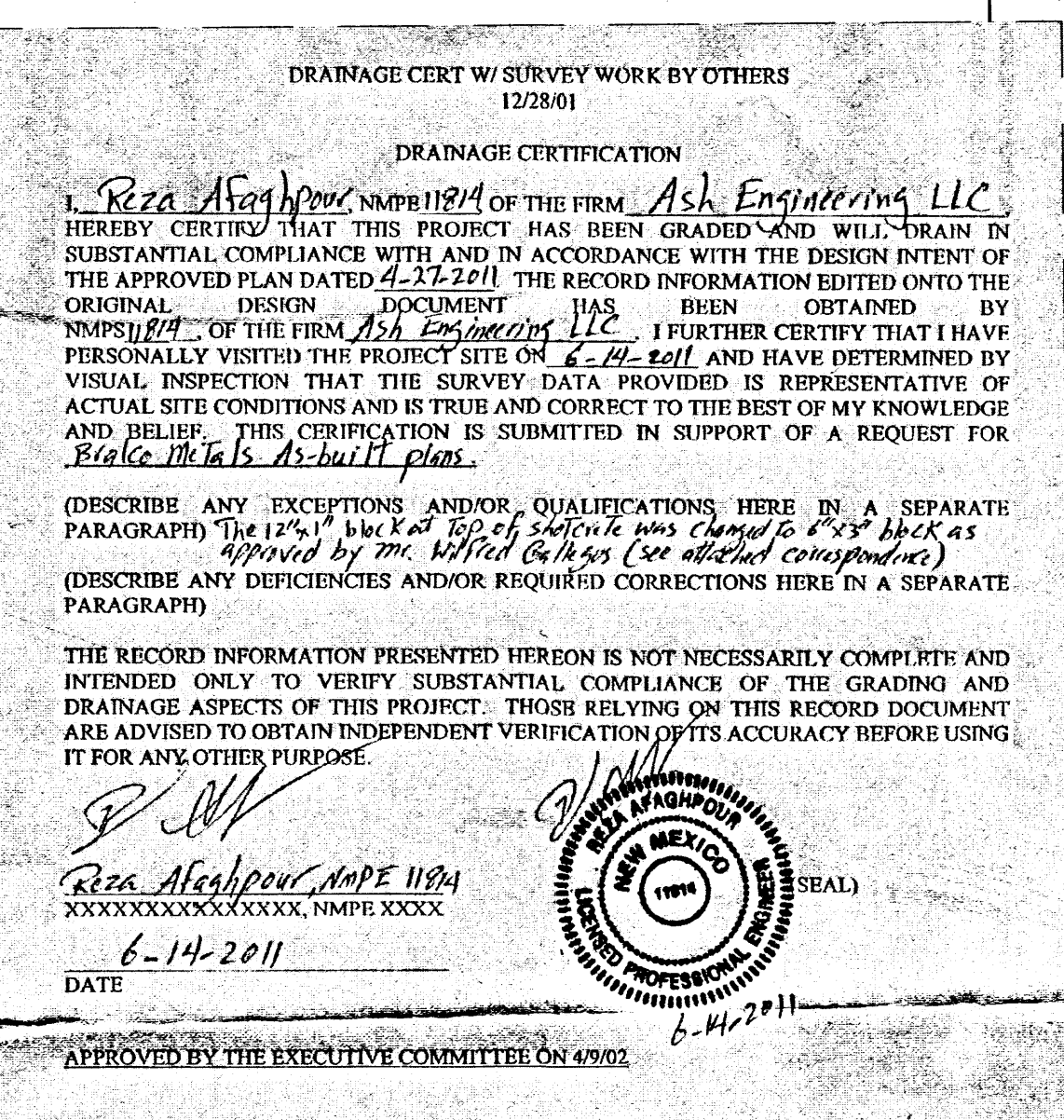
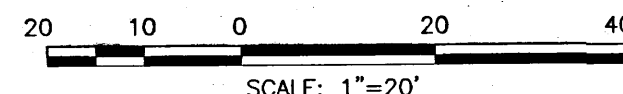
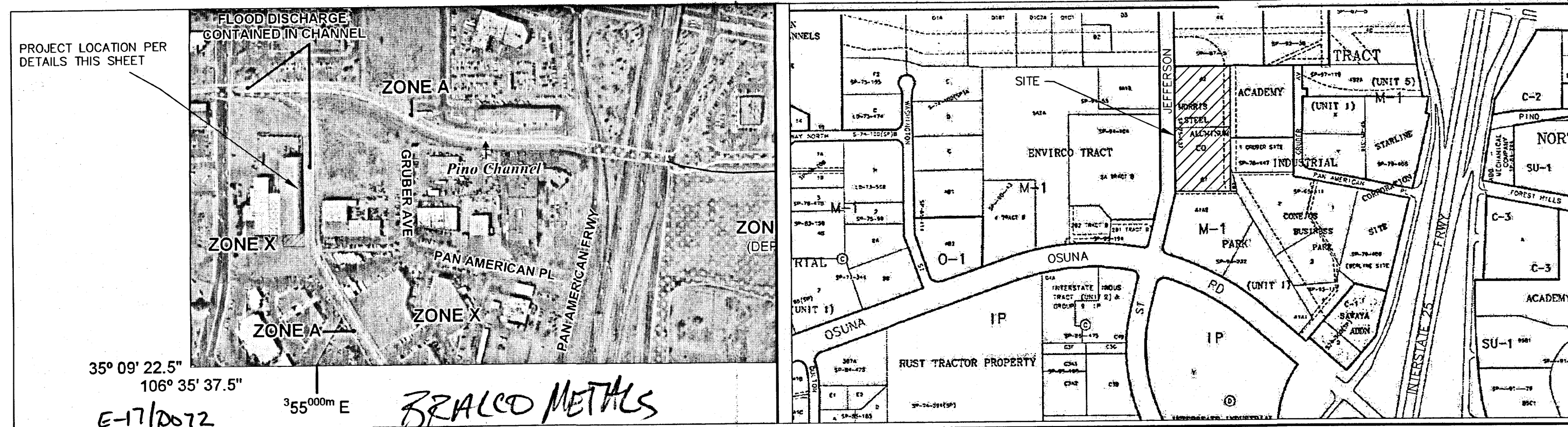
### COMPARISON

- PROJECT AREA
  - VOLUME  
 $\Delta V100 = 959 - 431 = 528$  CF (INCREASE)
- PEAK DISCHARGE  
 $\Delta Q100 = 0.62 - 0.35 = 0.27$  CFS (INCREASE)



FEMA FIRM 35001C0137G

ZONE ATLAS PAGE E-17-Z



NO.	1	2	3	4	5	6	7
REVISIONS (OR CHANGE NOTICES)							
DATE							
BY							

Designed By:	ASH ENGINEERING, LLC
Designed For:	BLANCO METALS

GRADING & DRAINAGE PLAN
BLANCO METALS NORTHEAST CORNER OF JEFFERSON & OSUNA

PROJECT NO. XXXX
DESIGNED BY: RA
DRAWN BY: RA
CHECKED BY: RA
DATE: APR. 12, 2011
DPW CHK:
SHEET: G1



MODIFIED

GENERAL NOTES

1. PRIOR TO ANY CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE LOCATION OF ALL POTENTIAL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AS SOON AS POSSIBLE TO RESOLVE THE CONFLICT WITH A MINIMUM AMOUNT OF DELAY.
2. ALL WORK ON THIS PLAN SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS, RULES AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH.
3. IF ANY UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES ARE SHOWN ON THESE DRAWINGS, THEY ARE SHOWN IN AN APPROXIMATE LOCATION ONLY, AND LINES MAY EXIST WHERE NONE ARE SHOWN, THE LOCATION IS BASED UPON INFORMATION PROVIDED BY THE UTILITY OWNER OR FROM EXISTING PLANS, AND THIS INFORMATION MAY BE INCOMPLETE, OR OBSOLETE AT THE TIME OF CONSTRUCTION. THE ENGINEER HAS NOT UNDERTAKEN ANY VERIFICATION OF THESE LOCATIONS, LINE SIZES OR MATERIAL TYPE, MAKES NO REPRESENTATION THERETO, AND ASSUMES NO RESPONSIBILITY OR LIABILITY THEREFOR. THE CONTRACTOR SHALL INFORM ITSELF OF THE LOCATION OF ANY UTILITY LINE, PIPELINE OR UNDERGROUND INSTALLATION IN OR NEAR THE AREA IN ADVANCE OF AND DURING ANY EXCAVATION WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE CAUSED BY ITS FAILURE TO LOCATE, IDENTIFY AND PRESERVE ANY AND ALL EXISTING UTILITIES, PIPELINES AND UNDERGROUND FACILITIES. IN PLANNING AND CONDUCTING EXCAVATIONS, THE CONTRACTOR SHALL COMPLY WITH ALL STATE STATUTES, MUNICIPAL AND LOCAL ORDINANCES, RULES AND REGULATIONS, IF ANY, PERTAINING TO THE LOCATION OF THESE LINES AND FACILITIES.
4. THE CONTRACTOR SHALL INSURE THAT NO SOIL ERODES FROM THE SITE INTO PUBLIC RIGHTS-OF-WAY OR ONTO PRIVATE PROPERTY. THIS CAN BE ACHIEVED BY CONSTRUCTING TEMPORARY BERMS AND BY WETTING THE SOIL TO KEEP IT FROM BLOWING.
5. THE CONTRACTOR SHALL OBTAIN ANY AND ALL PERMITS REQUIRED BY CITY OF ALBUQUERQUE FOR THE COMPLETION OF THE WORK PRIOR TO BEGINNING CONSTRUCTION.
6. DISTURBED GROUND NOT INCLUDED IN THE PROPOSED DRIVEWAY OR SHOWN AS LANDSCAPING SHALL BE RESEEDING IN ACCORDANCE WITH THE APWA STANDARD SPECIFICATIONS (1101 & 1102). THE REQ'D "LOOSENING" OF THE SEEDBED AND RESEEDING SHALL BE COMPLETED AS SOON AS PRACTICAL FOLLOWING GRADING OPERATIONS.
7. THE CONTRACTOR SHALL HAUL THE EXCESS DIRT FROM THE POND OFF-SITE.

### DRAINAGE CALCULATIONS

## SITE CHARACTERISTICS

1. PRECIPITATION ZONE = 2
2. TOTAL PROJECT AREA (A<sub>T</sub>) = 6,600 SF / 0.152 AC
3. EXISTING LAND TREATMENT
- | A. EXISTING PROJECT AREA | 6,600 SF =  | 0.152 AC |
|--------------------------|-------------|----------|
| TREATMENT                | AREA(SF/AC) | %        |
| B                        | 6600/0.152  | 100      |
4. DEVELOPED LAND TREATMENT
- | A. PROPOSED PROJECT AREA | 6,600 SF =  | 0.152 AC |
|--------------------------|-------------|----------|
| TREATMENT                | AREA(SF/AC) | %        |
| C                        | 2500/0.057  | 27       |
| D                        | 4100/0.094  | 63       |

### EXISTING CONDITIONS

- A. PROJECT AREA  
1. VOLUME  
$$EW = (E_{AA} + E_{AB} + E_{AC} + E_{AD}) / AT$$
$$EW = (0.78 + 0.152) / 0.152 = 0.78 \text{ IN}$$
$$V_{100} = (EW / 12) AT = (0.78 / 12) \cdot 0.152 = 0.010 \text{ AC-FT} = 431 \text{ CF}$$
  
2. PEAK DISCHARGE  
$$Q_P = Q_{PA} + Q_{PB} + Q_{PC} + Q_{PD}$$
$$Q_P = Q_{100} = (2.28 \cdot 0.152) = 0.35 \text{ CFS}$$

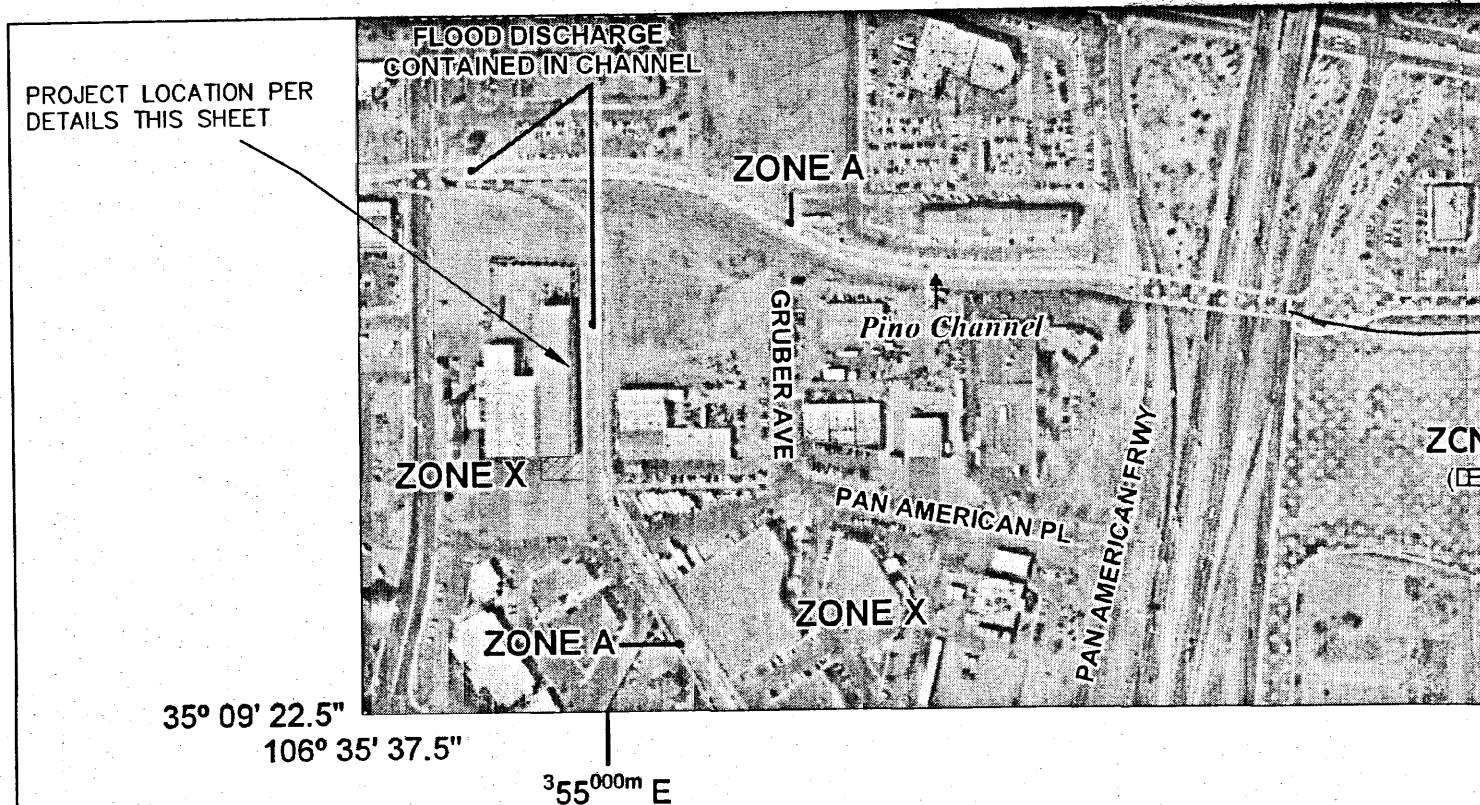
## DEVELOPED CONDITIONS

- A. PROJECT AREA
1. VOLUME
- $$EW = (EAAA + EAB\bar{B} + ECAC + EDAD) / AT$$
- $$EW = (.113 + .057) + (.212 \times .094) / 0.152 = 1.74 \text{ IN}$$
- $$V100 = (EW / 12) AT = (1.74 / 12) \times .152 = 0.220 \text{ AC-FT} = 959 \text{ CF}$$
2. PEAK DISCHARGE
- $$QP = QPAAA + QPBAB + QPCAC + QPDAD$$
- $$QP = Q100 = (.314 \times 0.057) + (.470 \times .094) = 0.62 \text{ CFS}$$

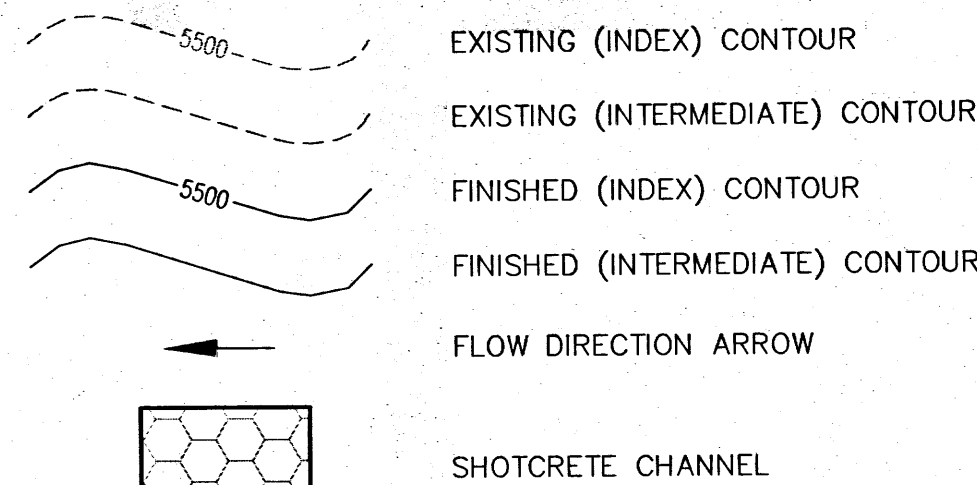
## COMPARISON

- A. PROJECT AREA
1. VOLUME  
 $\Delta V_{100} = 959 - 431 = 528 \text{ CF (INCREASE)}$
2. PEAK DISCHARGE  
 $\Delta Q_{100} = 0.62 - 0.35 = 0.27 \text{ CFS (INCREASE)}$

FEMA FIRM 35001C0137G



LEGEND

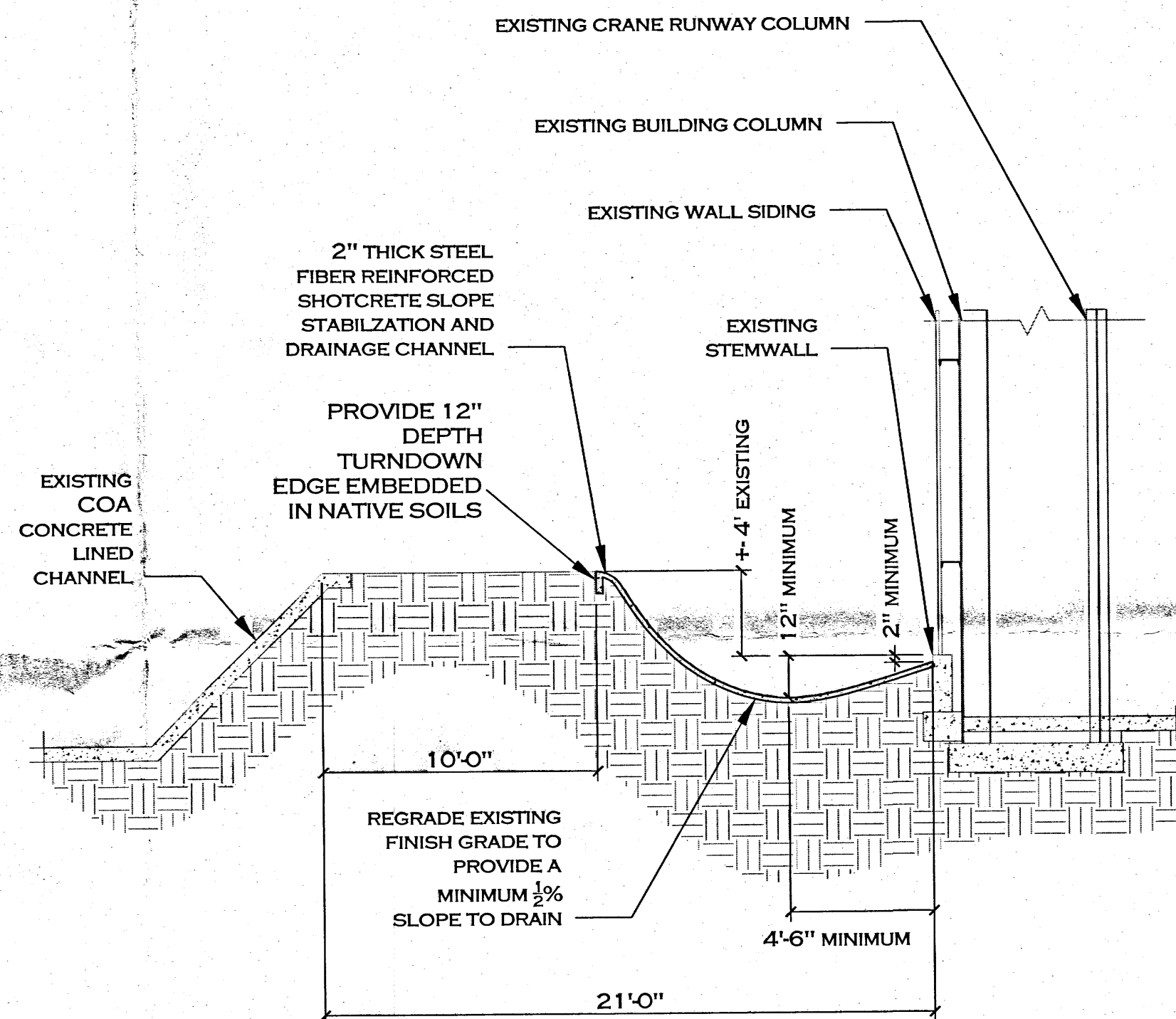


### SCOPE OF WORK

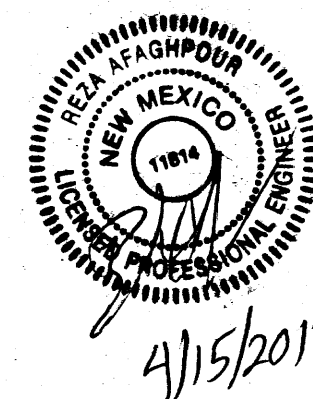
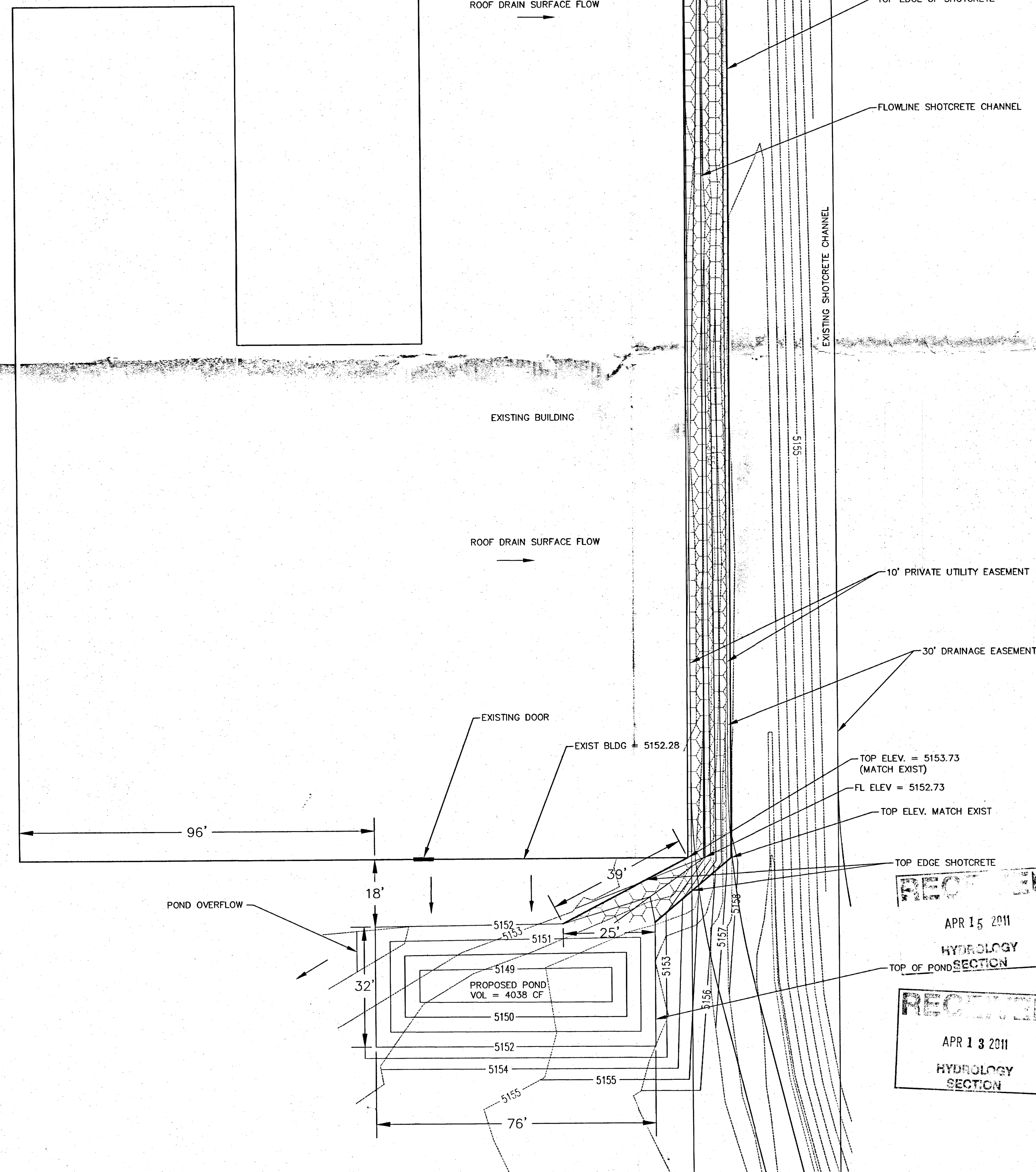
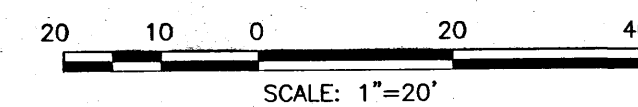
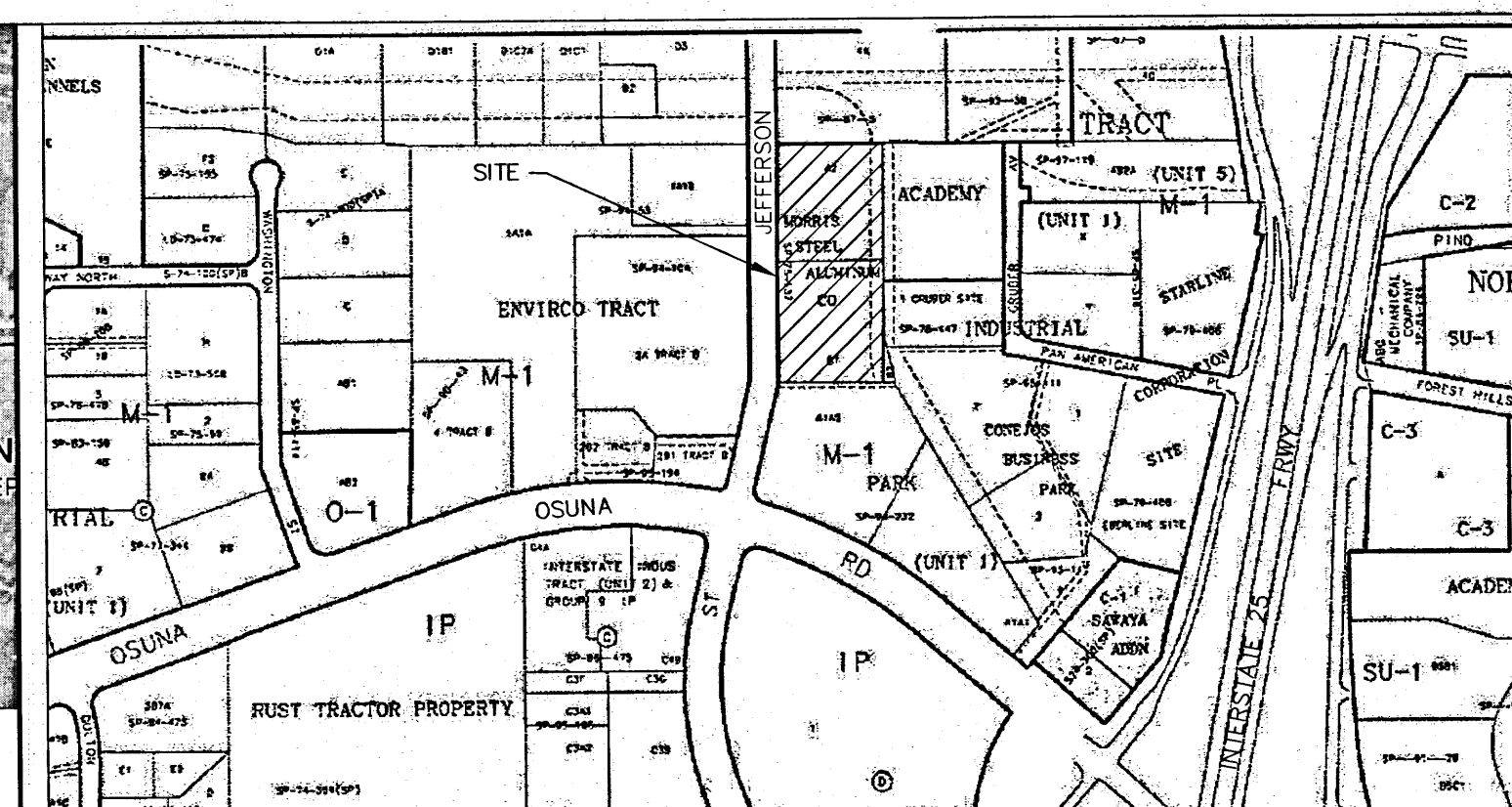
PROJECT INCLUDES MINOR EXCAVATION OF EXISTING SWALE ADJACENT TO BUILDING  
GRADING OF DETENTION POND ON SOUTH SIDE OF BUILDING, AND INSTALLATION OF  
SHOTCRETE SWALE TO CONVEY ROOF DRAINAGE SOUTH TO DETENTION POND.

### SHOTCRETE CHANNEL CROSS SECTION

SECTION A-A



ZONE ATLAS PAGE E-17-Z



NO.	DESCRIPTION	DATE	BY
7			
6			
5			
4			
3			
2			
1			

Designed By  
**ASH ENGINEERING LLC**

**BLACO METALS**

# GRADING & DRAINAGE PLAN

**BLACO METALS**  
**NORTHEAST CORNER OF**  
**JEFFERSON & OSUNA**

PROJECT NO. XXXX

DESIGNED BY: RA

DRAWN BY: RA

CHECKED BY: RA
DATE: APR. 12, 2011

DPW CHK:

**SHEET:**

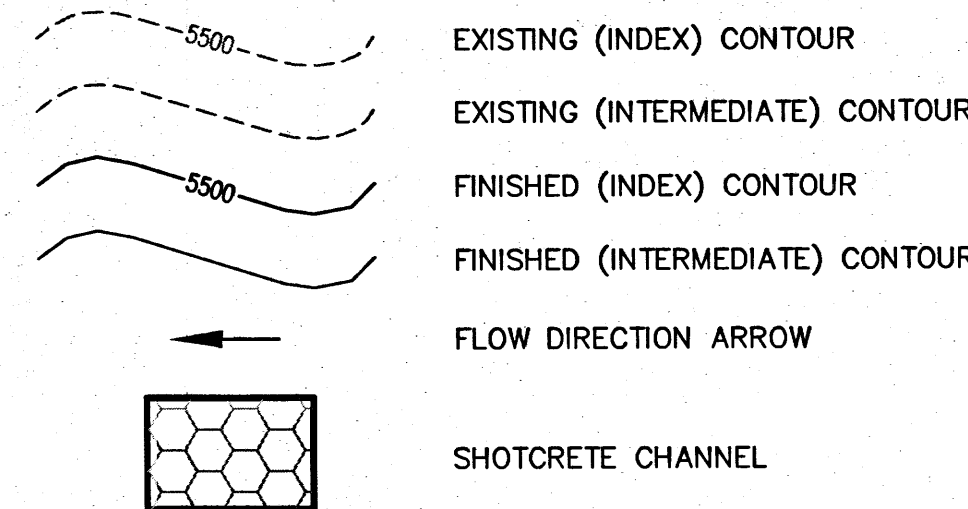
# G1



# GENERAL NOTES

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- THE CONTRACTOR SHALL HAUL THE EXCESS DIRT FROM THE POND OFF-SITE.

# LEGEND

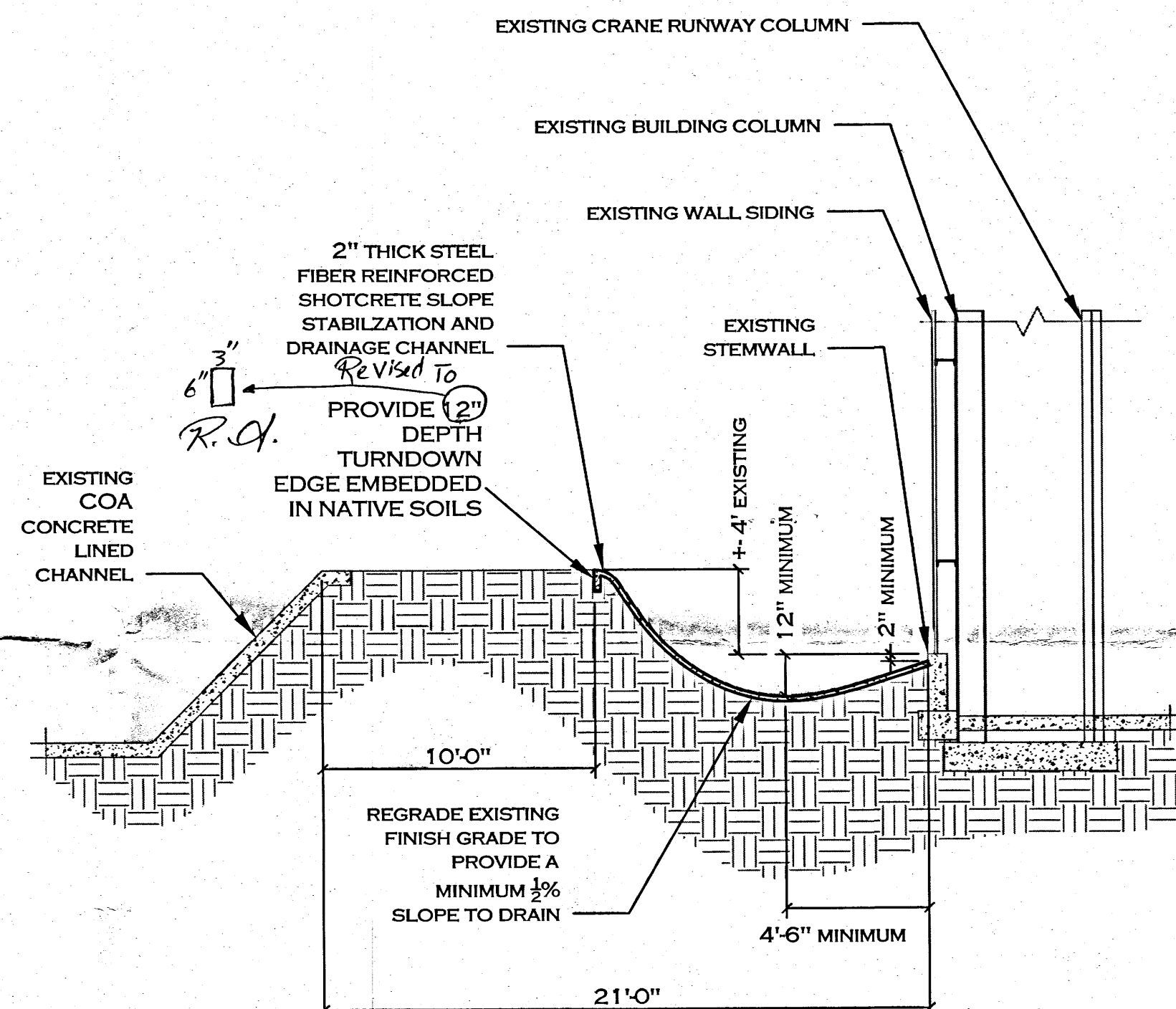


# SCOPE OF WORK

PROJECT INCLUDES MINOR EXCAVATION OF EXISTING SWALE ADJACENT TO BUILDING, GRADING OF DETENTION POND ON SOUTH SIDE OF BUILDING, AND INSTALLATION OF SHOTCRETE SWALE TO CONVEY ROOF DRAINAGE SOUTH TO DETENTION POND.

# SHOTCRETE CHANNEL CROSS SECTION

## SECTION A-A



# DRAINAGE CALCULATIONS

## SITE CHARACTERISTICS

- PRECIPITATION ZONE = 2
- TOTAL PROJECT AREA (A<sub>T</sub>) = 6,600 SF / 0.152 AC
- EXISTING LAND TREATMENT
 

TREATMENT	AREA(SF/AC)	%
A	6600/0.152	100
- DEVELOPED LAND TREATMENT
 

TREATMENT	AREA(SF/AC)	%
C	2500/0.057	27
D	4100/0.094	63

## EXISTING CONDITIONS

- PROJECT AREA
  - VOLUME  
 $E_w = (E_{AAA} + E_{BAB} + E_{CAC} + E_{DAD}) / A_T$   
 $E_w = ((0.78 \times 0.152) + (2.12 \times 0.094)) / 0.152 = 1.74$  IN  
 $V_{100} = (E_w / 12) A_T = (1.74 / 12) \times 0.152 = 0.010$  AC-FT = 431 CF
- PEAK DISCHARGE  
 $Q_p = Q_{pAAA} + Q_{pBAB} + Q_{pCAC} + Q_{pDAD}$   
 $Q_p = Q_{100} = (2.28 \times 0.152) = 0.35$  CFS

## DEVELOPED CONDITIONS

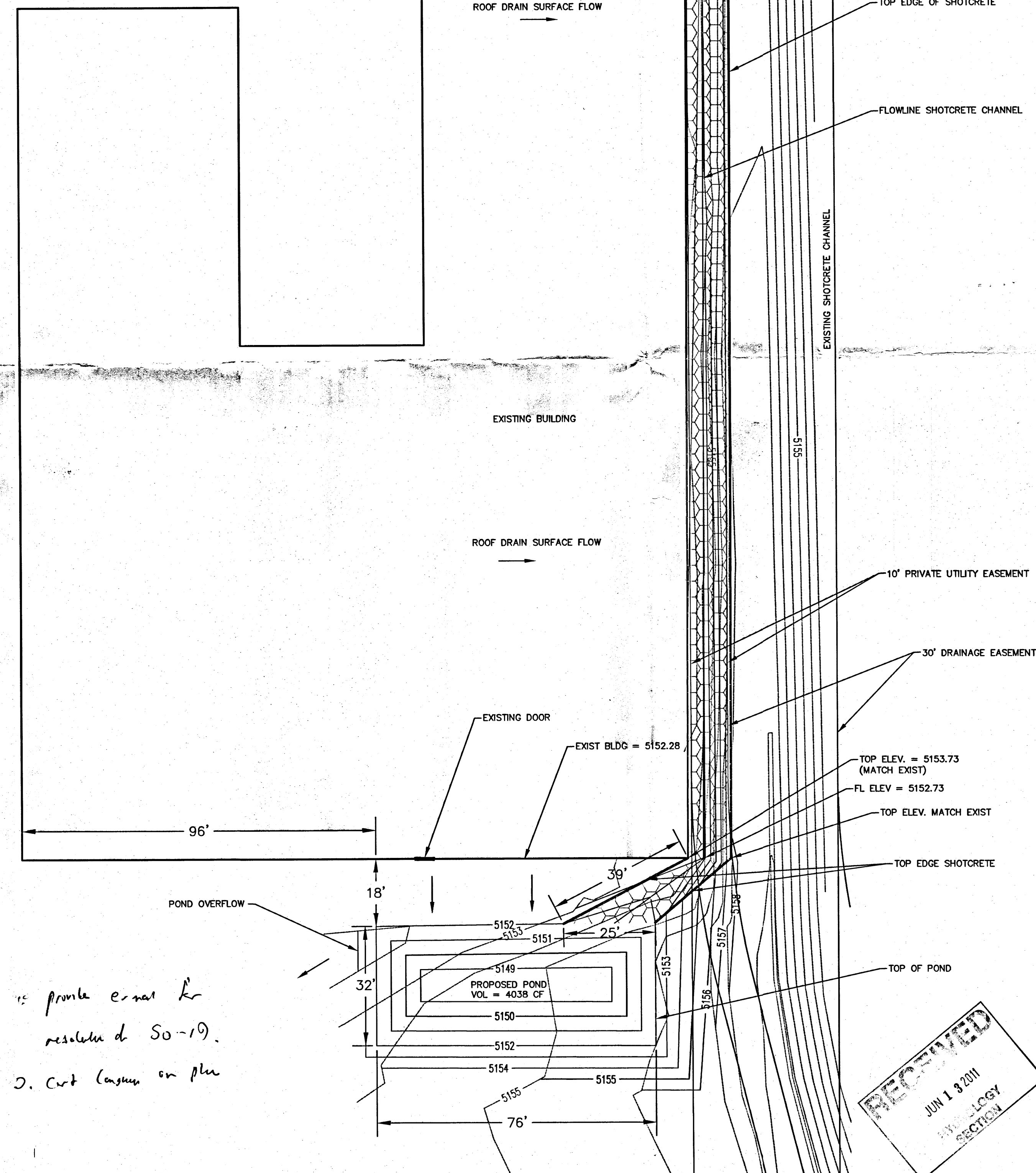
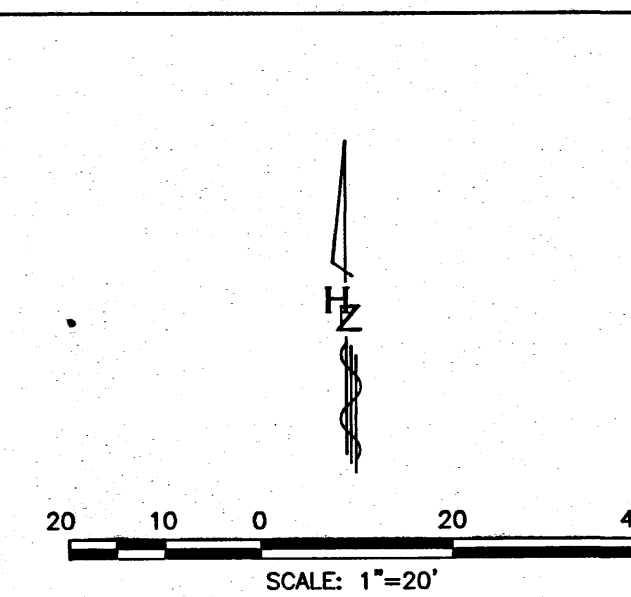
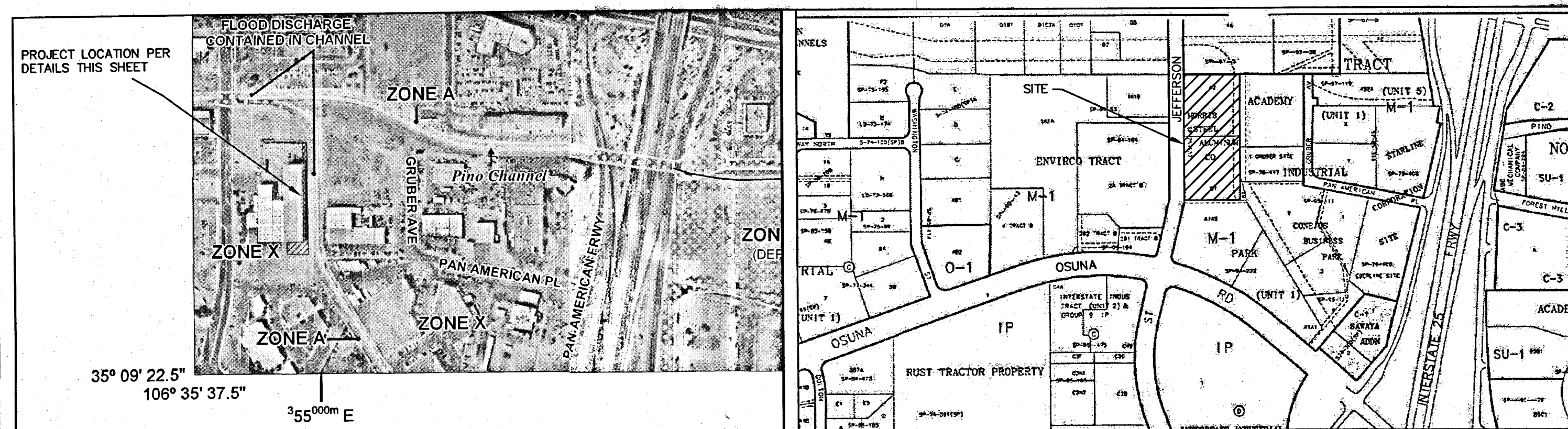
- PROJECT AREA
  - VOLUME  
 $E_w = (E_{AAA} + E_{BAB} + E_{CAC} + E_{DAD}) / A_T$   
 $E_w = ((1.13 \times 0.057) + (2.12 \times 0.094)) / 0.152 = 1.74$  IN  
 $V_{100} = (E_w / 12) A_T = (1.74 / 12) \times 0.152 = 0.220$  AC-FT = 959 CF
- PEAK DISCHARGE  
 $Q_p = Q_{pAAA} + Q_{pBAB} + Q_{pCAC} + Q_{pDAD}$   
 $Q_p = Q_{100} = (3.14 \times 0.057) + (4.70 \times 0.094) = 0.62$  CFS

## COMPARISON

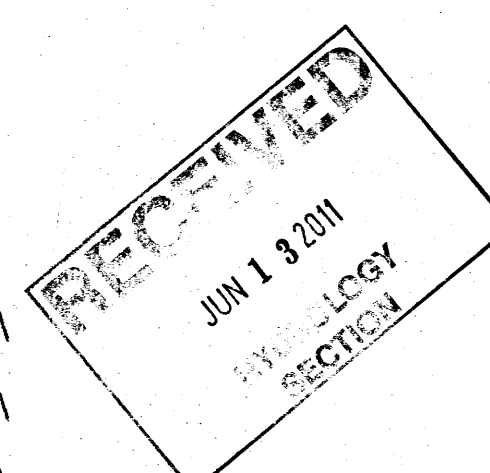
- PROJECT AREA
  - VOLUME  
 $\Delta V_{100} = 959 - 431 = 528$  CF (INCREASE)
- PEAK DISCHARGE  
 $\Delta Q_{100} = 0.62 - 0.35 = 0.27$  CFS (INCREASE)

FEMA FIRM 35001C0137G

ZONE ATLAS PAGE E-17-Z



1. provide canal for resolution of SO-19.  
 2. cut canyon on plan



NO.	DESCRIPTION	DATE	BY
7			
6			
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1			

Designed By: **ASH ENGINEERING, LLC**  
 Designed For: **BLACO METALS**

**GRADING & DRAINAGE PLAN**  
**BLACO METALS**  
**NORTHEAST CORNER OF JEFFERSON & OSUNA**

PROJECT NO. XXXX  
 DESIGNED BY: RA  
 DRAWN BY: RA  
 CHECKED BY: RA  
 DATE: APR. 12, 2011  
 DPW CHK:  
 SHEET: **G1**