CITY OF ALBUQUERQUE

Richard J. Berry, Mayor

May 25, 2017

Scott Eddings, P.E.
Huitt-Zollars
333 Rio Rancho Blvd., Suite 101
Rio Rancho, NM 87124

RE: **Winrock Redevelopment Sections 2 & 4 – 2100 Louisiana Blvd**
Request for Permanent C.O. - Accepted
Grading and Drainage Plan, Engineer's Stamp Date: 7/20/15
Engineer's Drainage Certification Dates: 3/21/17 & 4/10/17
Public Work Order Set: 4553.84
Hydrology File: J19D058C

Dear Mr. Eddings:

PO Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

Based on the information provided in your Engineer's Drainage Certification received 3/21/17, updated information received on 5/25/17, and Public Work Order Record Drawings certified on 1/5/17, the closeout of the Public Work Order and Release of Permanent Certificate of Occupancy (CO-Perm) are approved for Hydrology.

If you have any questions, please contact me at 924-3695 or Totten Elliott at 924-3982.

Sincerely,

Dana Peterson, P.E.
Senior Engineer, Planning Dept.
Development Review Services

TE/DP
CC email: Tena, Victoria; Fox, Debbie; Serna, Yvette; Sandoval, Darlene.

Orig: Drainage File

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 10/2015)

Project Title: Winrock Town Center-Section 2 and 4 Building Permit #:_____ Hydrology File #: J19D058C

DRB#:_____ EPC#:_____ Work Order#:_____

Legal Description: Parcel A-1-A-1-A-1 Winrock Town Center

City Address: 2100 Louisiana Blvd NE

Applicant: Huitt-Zollars, Inc Contact: Scott Eddings

Address: 333 Rio Rancho Blvd, Rio Rancho NM, 87124

Phone#: 505-892-5141 Fax#: 505-892-3259 E-mail: seddings@huitt-zollars.com

Other Contact: Goodman Realty Contact: Fred Gorenz

Address: 100 Sun Avenue

Phone#: 881-0100 Fax#: NA E-mail: NA

Check all that Apply:

DEPARTMENT:

X HYDROLOGY/ DRAINAGE
____ TRAFFIC/ TRANSPORTATION
____ MS4/ EROSION & SEDIMENT CONTROL

TYPE OF SUBMITTAL:

X ENGINEER/ARCHITECT CERTIFICATION

____ CONCEPTUAL G & D PLAN
X GRADING PLAN
____ DRAINAGE MASTER PLAN
____ DRAINAGE REPORT
____ CLOMR/LOMR

____ TRAFFIC CIRCULATION LAYOUT (TCL)
____ TRAFFIC IMPACT STUDY (TIS)
____ EROSION & SEDIMENT CONTROL PLAN (ESC)

____ OTHER (SPECIFY) _____

IS THIS A RESUBMITTAL?: X Yes ____ No

TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

____ BUILDING PERMIT APPROVAL
X CERTIFICATE OF OCCUPANCY

____ PRELIMINARY PLAT APPROVAL
____ SITE PLAN FOR SUB'D APPROVAL
____ SITE PLAN FOR BLDG. PERMIT APPROVAL
____ FINAL PLAT APPROVAL

____ SIA/ RELEASE OF FINANCIAL GUARANTEE
____ FOUNDATION PERMIT APPROVAL
____ GRADING PERMIT APPROVAL
____ SO-19 APPROVAL
____ PAVING PERMIT APPROVAL
____ GRADING/ PAD CERTIFICATION
____ WORK ORDER APPROVAL
____ CLOMR/LOMR

____ **PRE-DESIGN MEETING?**

____ OTHER (SPECIFY) _____

DATE SUBMITTED: May 23, 2017 By: Scott Eddings

COA STAFF: ELECTRONIC SUBMITTAL RECEIVED: ____

DRAINAGE NARRATIVE

PURPOSE
THE PURPOSE OF THIS DRAINAGE PLAN ADDRESSES STORM WATER RUNOFF AND PROPOSED INFRASTRUCTURE NECESSARY TO CONVEY RUNOFF FROM THE PROPOSED SECTION 2 AND SECTION 4 WINROCK TOWN CENTER SITE PLAN. THESE SECTIONS ARE THE SOUTHEAST AND SOUTHWEST PORTIONS OF THE EXISTING MALL AND ALSO INCLUDE SURFACE PARKING ARES. THE PLAN WILL EXHIBIT COMPLIANCE WITH THE CITY OF ALBUQUERQUE DPM CHAPTER 22 AND THE DRAINAGE MASTER PLAN (DMP) FOR WINROCK TOWN CENTER PREPARED BY ISAACSON AND ARFMAN, P.A. DATED JUNE 26, 2015.

EXISTING CONDITIONS
THE WINROCK SITE IS A COMPLEX OF BUILDINGS THAT INCLUDES THE MAIN MALL, A NUMBER OF OUTLYING RESTAURANTS, THE TOYS 'R' US, AND A RECENTLY COMPLETED MOVIE THEATER. THE EXISTING MALL BUILDING IS COMPOSED OF A NUMBER OF INDIVIDUAL BUILDINGS THAT WERE ENCLOSED BY AN OVERALL STRUCTURE.

THE SITE IS BOUNDED BY INDIAN SCHOOL ROAD TO THE NORTH, AMERICA'S PARKWAY (AKA UPTOWN LOOP) TO THE NORTHWEST, LOUISIANA BLVD TO THE WEST, I-40 AND THE EMBUDO ARROYO TO THE SOUTH, THE WINROCK VILLAS CONDO COMPLEX TO THE EAST, AND PENNSYLVANIA AVE TO THE NORTHEAST. THE SITE GENERALLY SLOPES FROM THE EAST TOWARDS THE SOUTHWEST CORNER.

EXISTING DRAINAGE PATTERNS DIRECT STORM WATER TOWARDS ONE OF THE EXISTING STORM DRAINS, OR TO THE SURROUNDING ROADS. THE SITE IS COMPLETELY DEVELOPED WITH ABOUT 88% IMPERVIOUS AREA.

RELATED REPORTS
- "DRAINAGE MASTER PLAN" FOR WINROCK TOWN CENTER BY ISAACSON AND ARFMAN, P.A. DATED 6/26/2015
- "PHASE 1 AMENDMENT TO THE FINAL DRAINAGE STUDY FOR WINROCK REDEVELOPMENT" BY HUITT- ZOLLARS, INC. DATED 09/07/2011 (H-Z AMENDMENT)
- "FINAL DRAINAGE STUDY FOR WINROCK REDEVELOPMENT WINROCK MARKET CENTER" BY HUITT- ZOLLARS, INC. DATED 03/13/2006 (H-Z DRAINAGE STUDY)

IN THE EXISTING CONDITION THE SITE IS FULLY DEVELOPED AND DOESN'T PROVIDE ANY ONSITE DETENTION, RESULTING IN A HISTORIC FREE-DISCHARGE FROM THE OVERALL WINROCK SITE. DOWNSTREAM DRAINAGE INFRASTRUCTURE IS SIZED TO ACCEPT THE EXISTING FLOWS FROM EACH EXISTING DISCHARGE POINT.

DMP DRAINAGE BASINS & SUB BASINS INCLUDED IN THIS PROJECT:
- **SUB BASIN** 301 BASIN 400 BASIN 400 BASIN 500 ROOF TOP
- **SUB** BASIN 302 BASIN 500 BASIN 610 BASIN 530

DMP REQUIREMENTS INCLUDE THE FOLLOW:
- DESIGN EACH PROJECT USING THE LAND TREATMENTS CALLED OUT FOR EACH BASIN IN THE HYDROLOGY CALCULATIONS IN APPENDIX B.
- EVERY NEW DEVELOPMENT IS REQUIRED TO BUILD DOWNSTREAM STORM DRAINS THAT ARE SHOWN IN THIS DMP. THE IMPROVEMENTS MUST MEET CITY OF ALBUQUERQUE STANDARDS.
- THE DEVELOPMENTS ARE ALSO REQUIRED TO DESIGN HOW FLOWS ARE DIRECTED TO THAT INFRASTRUCTURE.
- EXAMPLES INCLUDE NUMBER AND LOCATION OF STORM INLETS, ROOF DRAIN CONNECTIONS, SIDEWALK CULVERTS, STREET FLOW CAPACITY, ETC.
- AS PART OF THE INDIVIDUAL GRADING & DRAINAGE PLANS, EVERY NEW DEVELOPMENT WITHIN THE PROJECT IS REQUIRED TO TREAT "FIRST FLUSH" STORM WATER PER CITY OF ALBUQUERQUE DPM REQUIREMENTS.
- "ROOFTOP" BASINS WILL BE DIRECTED TO THE WATER FEATURE IN BASIN 500P FOR TREATMENT.
- EXISTING STORM DRAINS THAT ARE UNDER PROPOSED BUILDINGS MUST BE REMOVED. OTHER EXISTINGSTORM DRAINS THAT ARE NOT TO BE USED MAY BE ABANDONED IN-PLACE.

SUMMARY
STORM DRAIN 1 - 36" RCP
FIVE BASINS WILL DISCHARGE STORM WATER INTO STORM DRAIN 1.
- **BASINS 500 (ROOFTOP) AND 500 A4**
- **FIRST FLUSH FOR THE SERVICE AREA WILL BE THE UNDERGROUND STORM CHAMBERS.**

STORM DRAIN 2 - 36" HPPP
ONE BASINS PLUS STORM DRAIN 1 WILL DISCHARGE STORM WATER INTO STORM DRAIN 2.
- **BASIN 500 A1** AT INLET NO. 2.

STORM DRAIN 3 - 24" HPPP
ONE BASIN DISCHARGES INTO STORM DRAIN 3.
BASIN 530 DISCHARGES INTO STORM DRAIN 3 IN A BANK OF INLETS AT ANALYSIS POINT 3 **(AP 3)**.

STORM DRAIN 4 - 36" HPPP
STORM DRAIN 3 DISCHARGES INTO STORM DRAIN 4.
- **BASIN 500 A5**
- **BASIN 500 A6**

STORM DRAINS 2 AND 4 DISCHARGE INTO THE EXISTING 42" STORM DRAIN WHICH DISCHARGES INTO THE I-40 CHANNEL.

STORM DRAIN 5 - 24" RCP
TWO BASINS WILL DISCHARGE INTO STORM DRAIN 5.
- **BASIN 500 ROOFTOP** IS A ROOF TOP BASIN AND THE ROOF DRAINS WILL BE TIED INTO STORM DRAIN 5.
- **BASIN 500 ROOFTOP** IS A ROOF TOP BASIN AND THE ROOF DRAINS WILL BE TIED INTO STORM DRAIN 5.

STORM DRAIN 6 - 42" HPPP
DMP STORM DRAIN FOR BASIN 300. STORM DRAIN DISCHARGES TO EXISTING 84" STORM DRAIN.

STORM DRAIN 7 - 36" HPPP
DMP STORM DRAIN FOR BASIN 300. STORM DRAIN DISCHARGES INTO STORM DRAIN 6.

STORM DRAIN 8 - 24" HPPP
DMP STORM DRAIN FOR BASIN 300. STORM DRAIN DISCHARGES INTO STORM DRAIN 7.

"FIRST FLUSH" TREATMENT
BASINS WITH PARKING FIELDS HAVE DEPRESSED LANDSCAPE PARKING ISLANDS AND ARE GRADED TO ACCEPT SURFACE FLOWS ON THE HIGH SIDE AND EXCESS WATER WILL SPILL OVER THE HIGH SIDE CURBING IN ORDER TO TREAT THE "FIRST FLUSH" EVENT. SEE SHEET C103 FOR ADDITIONAL FIRST FLUSH INFORMATION.

HYRDOLOGY

Basin	Sub-Basin	Description	Land Treatements (DEVELOPED) Percentage A	B	C	D	AREA SF	AREA AC	10-YR Peak Discharge CFS/ACRE A	B	C	D	100-YR Peak Discharge CFS/ACRE A	B	C	D	10-YR PEAK FLOW CFS	100-YR PEAK FLOW CFS	Drainage Master Plan 100-YR PEAK FLOW CFS
301	A1	Road	0	9	0	91	16,365	0.376	0.58	1.19	2.00	3.39	1.87	2.60	3.45	5.02	1.2	1.8	
301	A2	Road	0	9	0	91	15,859	0.364	0.58	1.19	2.00	3.39	1.87	2.60	3.45	5.02	1.2	1.7	
TOTAL								**0.740**									**2.361**	**3.552**	**120.1**
302	A1	Road	0	9	0	91	25,502	0.585	0.58	1.19	2.00	3.39	1.87	2.60	3.45	5.02	1.9	2.8	
302	A2	Roads and Parking Field	0	17	0	83	39,398	0.904	0.58	1.19	2.00	3.39	1.87	2.60	3.45	5.02	2.7	4.2	
TOTAL								**1.490**									**4.597**	**6.980**	**120.1**
400	A1	Roads and Parking Field	0	9	0	91	140,415	3.223	0.58	1.19	2.00	3.39	1.87	2.60	3.45	5.02	10.3	15.5	
TOTAL								**3.223**									**10.3**	**15.5**	**15.2**
500	A1	Road	0	9	0	91	54,006	1.240	0.58	1.19	2.00	3.39	1.87	2.60	3.45	5.02	4.0	6.0	
500	A2	Exposed Parking Structure	0	0	0	100	74,442	1.709	0.58	1.19	2.00	3.39	1.87	2.60	3.45	5.02	5.8	8.6	
500	A3	Road	0	9	0	91	11,021	0.253	0.58	1.19	2.00	3.39	1.87	2.60	3.45	5.02	0.8	1.2	
500	A4	Concrete Service Area	0	0	0	100	43,255	0.993	0.58	1.19	2.00	3.39	1.87	2.60	3.45	5.02	3.4	5.0	
500	A5	Parking Field	0	17	0	83	47,634	1.094	0.58	1.19	2.00	3.39	1.87	2.60	3.45	5.02	3.3	5.0	
500	A6	Parking Field	0	17	0	83	116,179	2.667	0.58	1.19	2.00	3.39	1.87	2.60	3.45	5.02	8.0	12.3	
TOTAL								**7.955**									**25.3**	**38.1**	**38.3**
610	A1	Roads	0	3	12	85	11,646	0.267	0.58	1.19	2.00	3.39	1.87	2.60	3.45	5.02	0.8	1.3	
TOTAL								**0.267**									**0.8**	**1.3**	**5.5**
SITE TOTAL								**13.676**									**43.358**	**65.348**	

FIRST FLUSH REQUIRED VOLUME

Basin	Sub-Basin	Description	Land Treatements (DEVELOPED) Percentage A	B	C	D	AREA SF	AREA AC	FIRST FLUSH RATES CF/ACRE A	B	C	D	FIRST FLUSH VOLUME REQUIRED VOLUME CF	8" DEEP DEPRESSED LANDSCAPE AREA PROVIDED CUBIC FEET
301	A1	Road	0	9	0	91	16,365	0.376	399	545	762	1416	502.52	
301	A2	Road	0	9	0	91	15,859	0.364	399	545	762	1416	486.99	
TOTAL								**0.740**					**989.51**	**0.00**
302	A1	Road	0	9	0	91	25,502	0.585	399	545	762	1416	783.10	
302	A2	Roads and Parking Field	0	17	0	83	39,398	0.904	399	545	762	1416	1,146.78	
TOTAL								**1.490**					**1,929.88**	**0.00**
400	A1	Roads and Parking Field	0	9	0	91	140,415	3.223	399	545	762	1416	4,311.77	5,370.00
TOTAL								**3.223**					**4,311.77**	**5,370.00**
500	A1	Road	0	9	0	91	54,006	1.240	399	545	762	1416	1,658.38	3,800.00
500	A2	Exposed Parking Structure	0	0	0	100	74,442	1.709	399	545	762	1416	2,419.88	0.00
500	A3	Road	0	9	0	91	11,021	0.253	399	545	762	1416	338.43	500.00
500	A4	Concrete Service Area	0	0	0	100	43,255	0.993	399	545	762	1416	1,406.09	0.00
500	A5	Parking Field	0	17	0	83	47,634	1.094	399	545	762	1416	1,386.51	5,390.00
500	A6	Parking Field	0	17	0	83	116,179	2.667	399	545	762	1416	3,381.70	3,100.00
TOTAL								**7.955**					**10,590.98**	**12,790.00**
610	A1	Roads	0	3	12	85	11,646	0.267	399	545	762	1416	350.61	
TOTAL								**0.267**					**350.61**	**0.00**
SITE TOTAL								**13.676**					**18,172.75**	**18,160.00**

*BASIN 530 TO BE DEVELOPED IN THE FUTURE AND WILL BE ALLOWED TO DISCHARGE DIRECTLY TO INLETL NO. 3
FIRST FLUSH WILL BE CAPTURED AS PART OF FUTURE DEVELOPMENT.

ANALYSIS POINT

	BASIN	301		302		400	500							530 (DMP)	610
	SUB-BASIN	A1	A2	A1	A2		A1	A2	A3	A4	500 Rooftop (DMP)	A5	A6		A1
	100-YR PEAK FLOW	1.2	1.2	1.9	2.7	15.5	6	8.6	1.2	5	17	5	12.3	10	1.3
ANALYSIS POINT															
AP1	22									5	17				
AP2	2						2								
AP3	10													10	
AP4	5											5			
AP5	12.3												12.3		
AP6	32				2.7	15.5	4	8.6	1.2						
AP7	1.9			1.9											
AP8	2.4	1.2	1.2												
AP9	1.3														1.3

DRAINAGE CERTIFICATION

I, SCOTT A. EDDINGS, NMPE 12856, OF THE FIRM HUITT-ZOLLARS, INC. 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 7/20/15. THE RECORD INFORMATION EDITED ON TO THE ORIGINAL DESIGN DOCUMENT HAS BEEN OBTAINED FROM THE SURVEY DATED 10/4/16 PROVIDED BY JOSEPH M. SOLOMON, JR, NMPS 15075 OF THE FIRM HIGH MESA CONSULTING GROUP. I FURTHER CERTIFY THAT I HAVE PERSONALLY VISITED THE PROJECT SITE ON 10/5/16 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 A PERMANENT CERTIFICATE OF OCCUPANCY AT WINROCK SECTION 2 AND 4 WINROCK TOWN CENTER.

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 IT'S ACCURACY BEFORE USING IT FOR ANY OTHER PURPOSE.

SCOTT A. EDDINGS, NMPE 12856

3/21/17
DATE

SCOTT A. EDDINGS NEW MEXICO 12856 REGISTERED PROFESSIONAL ENGINEER

HUITT-ZOLLARS
Huitt-Zollars, Inc. Rio Rancho
333 Rio Rancho Drive NE, Suite 101
Rio Rancho, New Mexico 87124
Phone (505) 892-5141 Fax (505) 892-3259

REV	DATE	BY	REVISION
6			
5			
4			
3			
2			FIRST FLUSH PHASING
1	3/18/15	SAE	

MODULUS ARCHITECTS
220 COPPER AVE. N.W. SUITE 350
ALBUQUERQUE, NEW MEXICO 87102
PHONE (505) 338-1499 FAX (505) 338-1498

SCOTT A. EDDINGS NEW MEXICO 12856 REGISTERED PROFESSIONAL ENGINEER
7/20/15

BUILDING PERMIT

PROJECT TITLE: WINROCK SECTION 2 AND 4
WINROCK TOWN CENTER
ALBUQUERQUE, NEW MEXICO

PROJECT MANAGER: SCOTT EDDINGS P.E.
JOB NO. 303899.01
DRAWN BY: KLS
SHEET TITLE: DRAINAGE NARRATIVE / SUMMARY

DATE: 07/14/15
SCALE: 1"=100'
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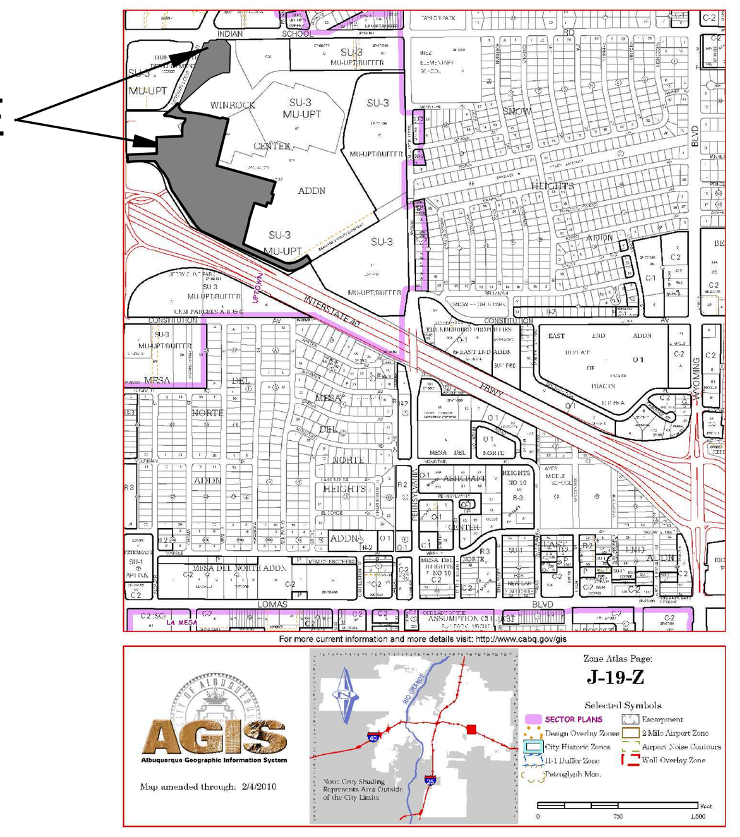
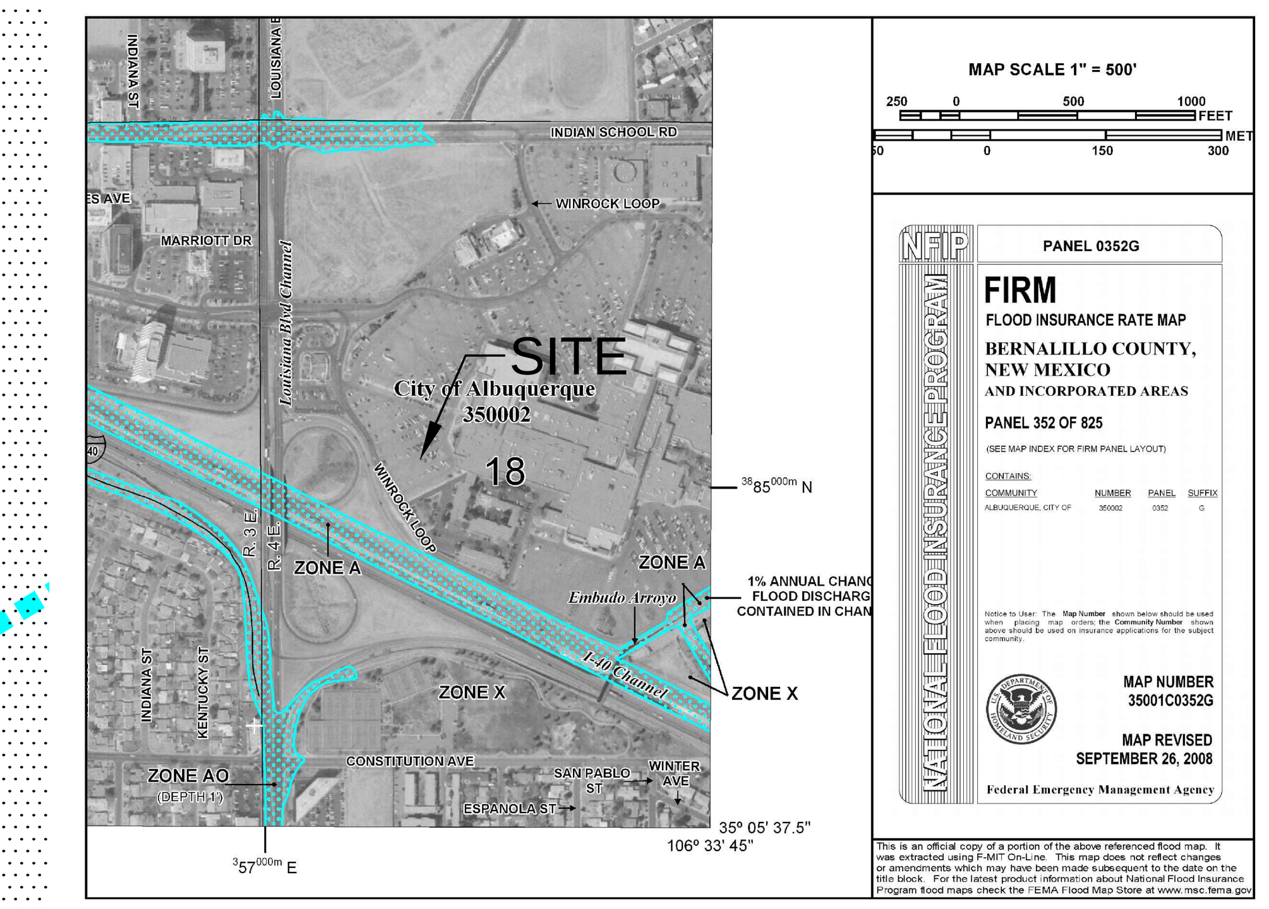
of- 13



ZONE ATLAS PAGE J-19-Z



FIRM PANEL 35001C0352G

LEGEND

▨	OUTSIDE OF CONSTRUCTION LIMITS (NOT INCLUDED)
▬	BASIN BOUNDARY
▪▪▪▪	DRAINAGE MASTER PLAN BASIN BOUNDARY
←	DISCHARGE LOCATION
■ ■ ■	SECTION 2 & 4 DRAINAGE SUB BASIN
- - -	DMP SUB BASIN

FLOOD ZONE

PER THE FEMA MAP NUMBER 35001 C0352G DATED SEPTEMBER 26, 2008 SHOWS THE SITE IS NOT LOCATED WITHIN A FLOOD HAZARD ZONE AREA.

DRAINAGE CERTIFICATION

I, SCOTT A. EDDINGS, NMPE 12856, OF THE FIRM HUITT-ZOLLARS, INC. 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 7/20/15. THE RECORD INFORMATION EDITED ON TO THE ORIGINAL DESIGN DOCUMENT HAS BEEN OBTAINED FROM THE SURVEY DATED 10/4/16 PROVIDED BY JOSEPH M. SOLOMON, JR, NMPS 15075 OF THE FIRM HIGH MESA CONSULTING GROUP. I FURTHER CERTIFY THAT I HAVE PERSONALLY VISITED THE PROJECT SITE ON 10/5/16 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 A PERMANENT CERTIFICATE OF OCCUPANCY AT WINROCK SECTION 2 AND 4 WINROCK TOWN CENTER.

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Scott Eddings

SCOTT A. EDDINGS, NMPE 12856

3/21/17

DATE

SCOTT A. EDDINGS
NEW MEXICO
12856
REGISTERED PROFESSIONAL ENGINEER

BUILDING PERMIT

HUITT-ZOLLARS
Huitt-Zollars, Inc. Rio Rancho
333 Rio Rancho Drive NE, Suite 101
Rio Rancho, New Mexico 87124
Phone (505) 892-5141 Fax (505) 892-3259

REV	DATE	BY	REVISION
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4			
3			
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1			

MODULUS ARCHITECTS
220 COPPER AVE. N.W. SUITE 350
ALBUQUERQUE, NEW MEXICO 87102
PHONE (505) 338-1499 FAX (505) 338-1498

SCOTT A. EDDINGS
NEW MEXICO
12856
REGISTERED PROFESSIONAL ENGINEER
7/20/15

PROJECT TITLE
WINROCK SECTION 2 AND 4
WINROCK TOWN CENTER
ALBUQUERQUE, NEW MEXICO

DRAWN BY: KLS

JOB NO. 303699.01

PROJECT MANAGER SCOTT EDDINGS P.E.

SHEET TITLE BASIN MAP

DATE: 07/20/15

SCALE: 1"=100'

sheet- 2 of- 13

C101

D C B A

Plotted: 3/21/2017 1:17:54 PM, By:Tafoya, Linda
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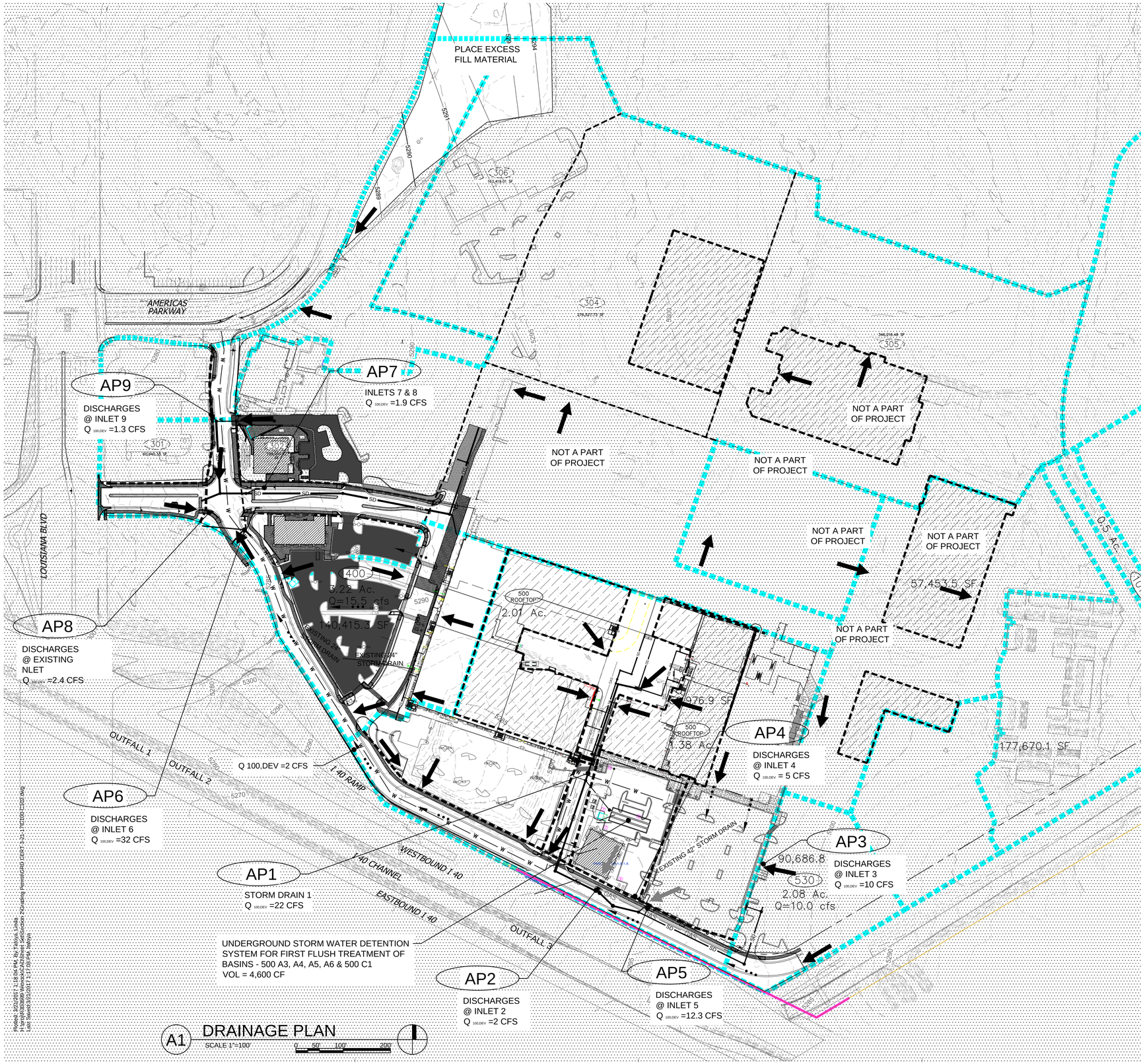
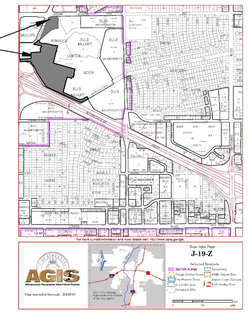
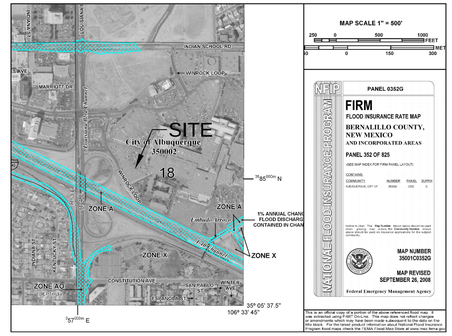




ZONE ATLAS PAGE J-19-Z



FIRM PANEL 35001C0352G

LEGEND

- CONSTRUCTION LIMITS
- BASIN BOUNDARY
- DISCHARGE LOCATION
- FLOW DIRECTION

FLOOD ZONE

PER THE FEMA MAP NUMBER 35001 C0352G DATED SEPTEMBER 26, 2008 SHOWS THE SITE IS NOT LOCATED WITHIN A FLOOD HAZARD ZONE AREA.

NOTE:

STORM DRAIN SYSTEM IS INCLUDED IN COA PROJECT NUMBER 4553.84

DRAINAGE CERTIFICATION

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SCOTT A. EDDINGS, NMPE 12856

3/21/17
DATE

SCOTT A. EDDINGS NEW MEXICO 12856 REGISTERED PROFESSIONAL ENGINEER

BUILDING PERMIT

HUITT-ZOLLARS
Huitt-Zollars, Inc. Rio Rancho
333 Rio Rancho Drive NE, Suite 101
Rio Rancho, New Mexico 87124
Phone (505) 892-5141 Fax (505) 892-3259

REV	DATE	BY	REVISION
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MODULUS ARCHITECTS
220 COPPER AVE. N.W. SUITE 350
ALBUQUERQUE, NEW MEXICO 87102
PHONE (505) 338-1499 FAX (505) 338-1498

SCOTT A. EDDINGS NEW MEXICO 12856 REGISTERED PROFESSIONAL ENGINEER
7/20/15

PROJECT TITLE: WINROCK SECTION 2 AND 4
WINROCK TOWN CENTER
ALBUQUERQUE, NEW MEXICO

PROJECT MANAGER: SCOTT EDDINGS P.E.
JOB NO. 3036999.01
DRAWN BY: KLS
SHEET TITLE: DRAINAGE PLAN

DATE: 07/20/15
SCALE: 1"=100'
sheet- 3
C102
of- 13

Plotted: 2/21/2017 1:18:04 PM By: HAGYA Jobs
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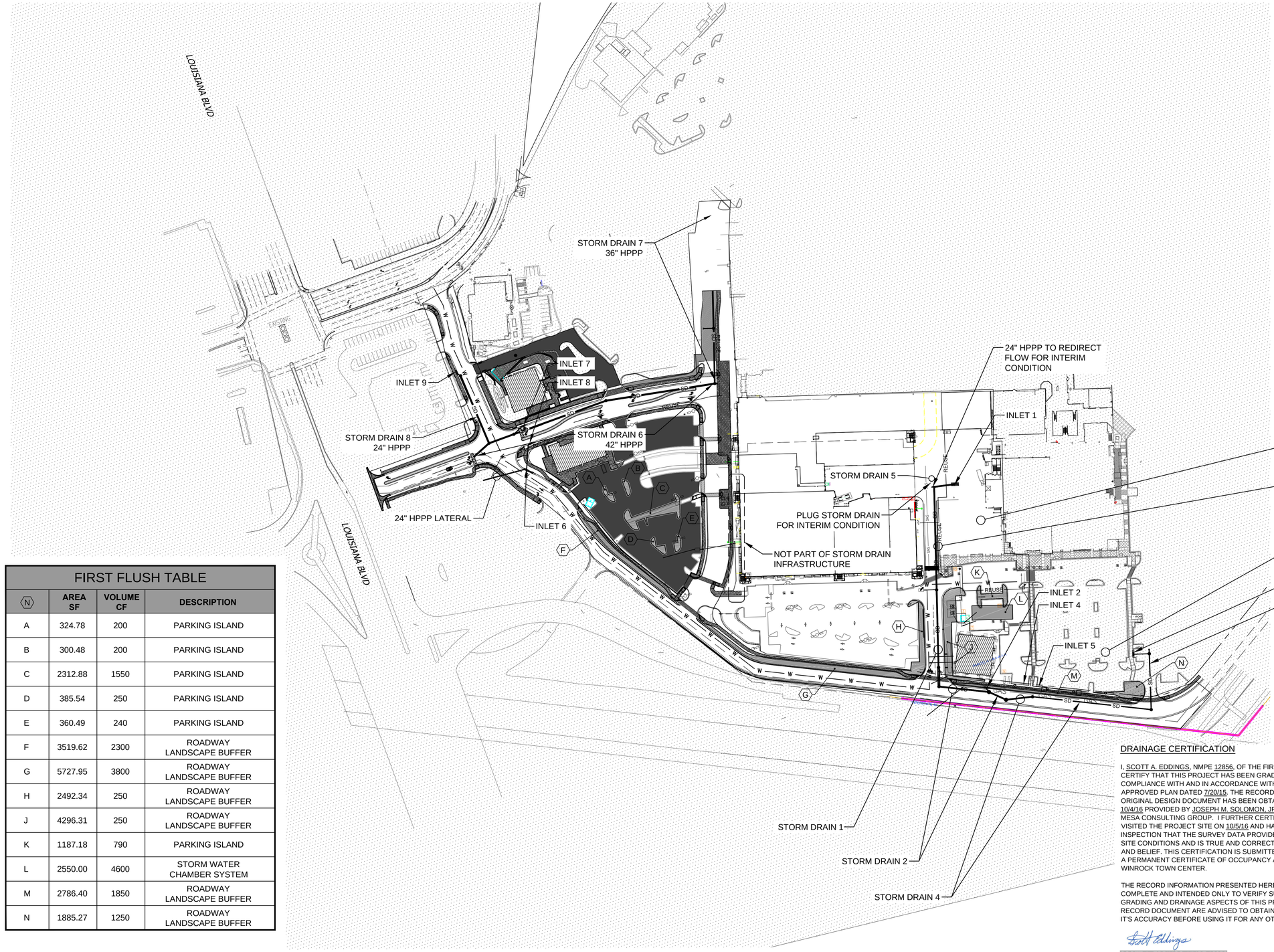

FIRST FLUSH TABLE			
(N)	AREA SF	VOLUME CF	DESCRIPTION
A	324.78	200	PARKING ISLAND
B	300.48	200	PARKING ISLAND
C	2312.88	1550	PARKING ISLAND
D	385.54	250	PARKING ISLAND
E	360.49	240	PARKING ISLAND
F	3519.62	2300	ROADWAY LANDSCAPE BUFFER
G	5727.95	3800	ROADWAY LANDSCAPE BUFFER
H	2492.34	250	ROADWAY LANDSCAPE BUFFER
J	4296.31	250	ROADWAY LANDSCAPE BUFFER
K	1187.18	790	PARKING ISLAND
L	2550.00	4600	STORM WATER CHAMBER SYSTEM
M	2786.40	1850	ROADWAY LANDSCAPE BUFFER
N	1885.27	1250	ROADWAY LANDSCAPE BUFFER

A1 FIRST FLUSH & STORM DRAIN LAYOUT
SCALE 1"=100'

DRAINAGE CERTIFICATION

I, SCOTT A. EDDINGS, NMPE 12856, OF THE FIRM HUITT-ZOLLARS, INC. 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 7/20/15. THE RECORD INFORMATION EDITED ON TO THE ORIGINAL DESIGN DOCUMENT HAS BEEN OBTAINED FROM THE SURVEY DATED 10/4/16 PROVIDED BY JOSEPH M. SOLOMON, JR. NMPS 15075 OF THE FIRM HIGH MESA CONSULTING GROUP. I FURTHER CERTIFY THAT I HAVE PERSONALLY VISITED THE PROJECT SITE ON 10/5/16 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 A PERMANENT CERTIFICATE OF OCCUPANCY AT WINROCK SECTION 2 AND 4 WINROCK TOWN CENTER.

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SCOTT A. EDDINGS, NMPE 12856

3/21/17
DATE

BUILDING PERMIT

HUITT-ZOLLARS
Huitt-Zollars, Inc. Rio Rancho
333 Rio Rancho Drive NE, Suite 101
Rio Rancho, New Mexico 87124
Phone (505) 892-5141 Fax (505) 892-3259

REV	DATE	BY	REVISION
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MODULUS ARCHITECTS
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SCOTT A. EDDINGS NEW MEXICO 12856 REGISTERED PROFESSIONAL ENGINEER
7/20/15

PROJECT TITLE: WINROCK SECTION 2 AND 4
WINROCK TOWN CENTER
ALBUQUERQUE, NEW MEXICO
JOB NO. 3036999.01
DRAWN BY: KLS
PROJECT MANAGER: SCOTT EDDINGS P.E.
SHEET TITLE: FIRST FLUSH & STORM DRAIN LAYOUT
DATE: 07/20/15
SCALE: 1"=100'
sheet- 4
C103
of- 13

Plotted: 3/21/2017 1:37:51 PM, By: TaGya, Linda
File Name: P:\3036999 - Winrock Section 2\Grading Permit\GRD CERT 3-21-17\C103-CL05.dwg
Last Saved:3/21/2017 1:35:58 PM, ltaGya

RING ROAD (C) @ AP6

Worksheet for Typical Section B, 2% Cross Slope

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Channel Slope	0.00656	ft/ft
Normal Depth	0.67	ft

Section Definitions

Station (ft)	Elevation (ft)
0+00	0.67
0+00	0.00
0+30	0.60
0+30	0.67

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 0.67)	(0+30, 0.67)	0.013

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Discharge	32.43	ft³/s
Elevation Range	0.00 to 0.67 ft	
Flow Area	11.16	ft²
Wetted Perimeter	30.88	ft
Hydraulic Radius	0.36	ft
Top Width	30.33	ft
Normal Depth	0.67	ft
Critical Depth	0.75	ft
Critical Slope	0.00331	ft/ft

32 cfs REQUIRED

Worksheet for Typical Section B, 2% Cross Slope

Results

Velocity	4.70	ft/s
Velocity Head	0.34	ft
Specific Energy	1.01	ft
Froude Number	1.37	
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.67	ft
Critical Depth	0.75	ft
Channel Slope	0.00656	ft/ft
Critical Slope	0.00331	ft/ft

RING ROAD @ MOST FLAT SECTION

Worksheet for Typical Section B, 2% Cross Slope

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Channel Slope	0.00498	ft/ft
Normal Depth	0.67	ft

Section Definitions

Station (ft)	Elevation (ft)
0+00	0.67
0+00	0.00
0+30	0.60
0+30	0.67

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 0.67)	(0+30, 0.67)	0.013

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Discharge	45.69	ft³/s
Elevation Range	0.00 to 0.67 ft	
Flow Area	11.16	ft²
Wetted Perimeter	30.88	ft
Hydraulic Radius	0.36	ft
Top Width	30.33	ft
Normal Depth	0.67	ft
Critical Depth	0.72	ft
Critical Slope	0.00340	ft/ft

Worksheet for Typical Section B, 2% Cross Slope

Results

Velocity	4.09	ft/s
Velocity Head	0.26	ft
Specific Energy	0.93	ft
Froude Number	1.19	
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.67	ft
Critical Depth	0.72	ft
Channel Slope	0.00498	ft/ft
Critical Slope	0.00340	ft/ft

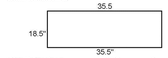
INLET 1

Worksheet (Sump Condition) for Inlet 1

Objective : Design a Type C Inlet in Sump Condition for a 100-year flow of: 23 cfs

1 Inlet to collect peak flow amount before overtopping headwall.

2 Grate Dimensions



18.5 **Net dimensions of open area of a single grate. (Total Area less Area of Bars)

Weir Perimeter = 14.9 ft
Area of Orifice = 9.1 sf

3 Calculate Orifice and Weir Flow into Grate at Design Depth (0.9 ft)

Orifice Equation		Weir Equation	
Q = 0.6 x A x (2 x g x h)^1/2		Q=2.65 x P x H^1/2	
Where		Where	
A =	9.1 sq. ft.	P=	14.9 ft
g =	32.2 ft^2/sec	H=	0.9 ft
h =	0.9 ft		
Therefore		Therefore	
Q =	41.7 cfs	Q =	37.5 cfs

Orifice Equation controls
Grate Capacity = 38 cfs

4 Apply 25% Clogging Factor to determine allowable design flow into inlet

38 x 0.75 **28 cfs**

Therefore Capacity of Double C Inlet in Sump Condition = 28 cfs

INLET 2

Chapter 22 - Drainage, Flood Control and Erosion Control

GRATING CAPACITIES FOR TYPE 'A' , 'C' and 'D'

Winrock Inlet 2
Actual Q= 3 CFS
S= 0.77

PLATE 22.3 D-5
May 2001

22-144

DRAINAGE CERTIFICATION

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Scott Eddings
SCOTT A. EDDINGS, NMPE 12856

3/21/17
DATE

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Huitt-Zollars, Inc. Rio Rancho
333 Rio Rancho Drive NE, Suite 101
Rio Rancho, New Mexico 87124
Phone (505) 892-5141 Fax (505) 892-3259

BUILDING PERMIT

REV	DATE	BY	REVISION
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7/20/15

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WINROCK TOWN CENTER
ALBUQUERQUE, NEW MEXICO

PROJECT MANAGER: SCOTT EDDINGS P.E.
JOB NO. 303699.01
DRAWN BY: KLS
SHEET TITLE: HYDROLICS - STREET/ INLET CAPACITY

DATE: 07/20/15
SCALE: 1"=100'
sheet- 5
C104
of- 13

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Last Saved 3/21/2017 1:35:58 PM, trafoya

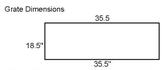
INLET 3

Worksheet (Sump Condition) for Inlet 3

Objective : Design a Type C Inlet in Sump Condition for a 100-year flow of: 10 cfs

1 Inlet to collect peak flow amount before overtopping headwall.

2 Grate Dimensions



**Net dimensions of open area of a single grate. (Total Area less Area of Bars)

Weir Perimeter = 9.0 ft
Area of Orifice = 4.6 sf

3 Calculate Orifice and Weir Flow into Grate at Design Depth (0.9 ft)

Orifice Equation		Weir Equation	
Q = 0.6 x A x (2 x g x h)^1/2		Q=2.65 x P x H^1/2	
Where		Where	
A =	4.6 sq. ft.	P=	9.0 ft
g =	32.2 ft ^2/sec	H=	0.9 ft
h =	0.9 ft		
Therefore		Therefore	
Q =	20.8 cfs	Q =	22.6 cfs

Orifice Equation controls
Grate Capacity = 21 cfs

4 Apply 25% Clogging Factor to determine allowable design flow into inlet

21 x 0.75 **16 cfs**

Therefore Capacity of Single C Inlet in Sump Condition = 16 cfs

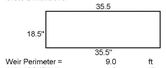
INLET 4

Worksheet (Sump Condition) for Inlet 4

Objective : Design a Type C Inlet in Sump Condition for a 100-year flow of: 5 cfs

1 Inlet to collect peak flow amount before overtopping headwall.

2 Grate Dimensions



**Net dimensions of open area of a single grate. (Total Area less Area of Bars)

Weir Perimeter = 9.0 ft
Area of Orifice = 4.6 sf

3 Calculate Orifice and Weir Flow into Grate at Design Depth (0.9 ft)

Orifice Equation		Weir Equation	
Q = 0.6 x A x (2 x g x h)^1/2		Q=2.65 x P x H^1/2	
Where		Where	
A =	4.6 sq. ft.	P=	9.0 ft
g =	32.2 ft ^2/sec	H=	0.9 ft
h =	0.9 ft		
Therefore		Therefore	
Q =	20.8 cfs	Q =	22.6 cfs

Orifice Equation controls
Grate Capacity = 21 cfs

4 Apply 25% Clogging Factor to determine allowable design flow into inlet

21 x 0.75 **16 cfs**

Therefore Capacity of Single C Inlet in Sump Condition = 16 cfs

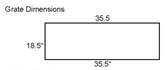
INLET 5

Worksheet (Sump Condition) for Inlet 5

Objective : Design a Type C Inlet in Sump Condition for a 100-year flow of: 12.3 cfs

1 Inlet to collect peak flow amount before overtopping headwall.

2 Grate Dimensions



**Net dimensions of open area of a single grate. (Total Area less Area of Bars)

Weir Perimeter = 9.0 ft
Area of Orifice = 4.6 sf

3 Calculate Orifice and Weir Flow into Grate at Design Depth (0.9 ft)

Orifice Equation		Weir Equation	
Q = 0.6 x A x (2 x g x h)^1/2		Q=2.65 x P x H^1/2	
Where		Where	
A =	4.6 sq. ft.	P=	9.0 ft
g =	32.2 ft ^2/sec	H=	0.9 ft
h =	0.9 ft		
Therefore		Therefore	
Q =	20.8 cfs	Q =	22.6 cfs

Orifice Equation controls
Grate Capacity = 21 cfs

4 Apply 25% Clogging Factor to determine allowable design flow into inlet

21 x 0.75 **16 cfs**

Therefore Capacity of Single C Inlet in Sump Condition = 16 cfs

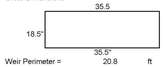
INLET 6

Worksheet (Sump Condition) for Inlet 6

Objective : Design a Type C Inlet in Sump Condition for a 100-year flow of: 30 cfs

1 Inlet to collect peak flow amount before overtopping headwall.

2 Grate Dimensions



**Net dimensions of open area of a single grate. (Total Area less Area of Bars)

Weir Perimeter = 20.8 ft
Area of Orifice = 13.7 sf

3 Calculate Orifice and Weir Flow into Grate at Design Depth (0.9 ft)

Orifice Equation		Weir Equation	
Q = 0.6 x A x (2 x g x h)^1/2		Q=2.65 x P x H^1/2	
Where		Where	
A =	13.7 sq. ft.	P=	20.8 ft
g =	32.2 ft ^2/sec	H=	0.9 ft
h =	0.9 ft		
Therefore		Therefore	
Q =	62.5 cfs	Q =	52.4 cfs

Orifice Equation controls
Grate Capacity = 52 cfs

4 Apply 25% Clogging Factor to determine allowable design flow into inlet

52 x 0.75 **39 cfs**

Therefore Capacity of Triple C Inlet in Sump Condition = 39 cfs

INLET 7

Chapter 22 - Drainage, Flood Control and Erosion Control

GRATING CAPACITIES FOR TYPE 'A', 'C' and 'D'

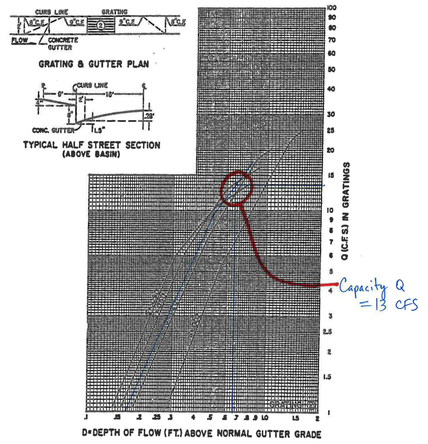


PLATE 22.3 D-5

May 2001

Winrock Inlet 7+8
Actual Q = 2 CFS
S = 3.1%

22-144

INLET 8

Chapter 22 - Drainage, Flood Control and Erosion Control

GRATING CAPACITIES FOR TYPE 'A', 'C' and 'D'

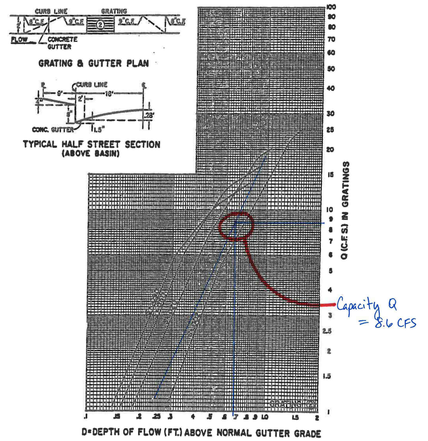


PLATE 22.3 D-5

May 2001

Winrock Inlet 9
Actual Q = 3 CFS
S = 0.35%

22-144

DRAINAGE CERTIFICATION

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Scott Eddings

SCOTT A. EDDINGS, NMPE 12856

3/21/17
DATE

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REV	DATE	BY	REVISION
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MODULUS ARCHITECTS
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PHONE (505) 338-1499 FAX (505) 338-1498

SCOTT A. EDDINGS NEW MEXICO 12856 REGISTERED PROFESSIONAL ENGINEER
7/20/15

BUILDING PERMIT

PROJECT TITLE: WINROCK SECTION 2 AND 4
WINROCK TOWN CENTER
ALBUQUERQUE, NEW MEXICO

PROJECT MANAGER: SCOTT EDDINGS P.E.
JOB NO. 303699.01
DRAWN BY: KLS

SHEET TITLE: HYDROLICS - INLET CAPACITY

DATE: 07/20/15
SCALE: 1"=100'
sheet- 6
C105
of- 13

LEGEND

- OUTSIDE CONSTRUCTION LIMITS
- EXISTING (INDEX) CONTOUR
- EXISTING (INTERMEDIATE) CONTOUR
- PROPOSED (INDEX) CONTOUR
- PROPOSED (INTERMEDIATE) CONTOUR
- CONSTRUCTED WITHIN WORK ORDER 4553.84
- WATER BLOCK
- ROOF DRAIN LOCATION
- ELEVATONS WITH 0.2 FEET OF DESIGN GRADES

SEE INSET "A" FOR CONTINUATION

CONSTRUCTION NOTES

1. PROVIDE 12" CURB OPENING
2. CONSTRUCT RETAINING WALL: RE SHEET C504
3. ADJUST INLET TO GRADE
4. 4' DIAMETER MANHOLE: RE COA STD DWG 2102
5. APPROXIMATE ROOF DRAIN LOCATION
6. APPROXIMATE RAMP DRAIN: RE MECHANICAL PLANS
7. 18"HDPE CORRUCATED STORM
8. 12" HDPE STORM DRAIN ROOF LEADER
9. 12" HPDE STORM DRAIN EXTEND TO RAMP INLET
10. GRADE 1' BELOW FLOWLINE
11. INSTALL ADS STORMWATER CHAMBER: RE SHEETS C501-C504
12. 24" SIDEWALK CULVERT PER COA STD DWG 2236
13. CONSTRUCT 1' BERM AROUND GRADED PAD
14. PROVIDE 12" CURB OPENING: RE SHEET C505

NOT A PART
EX. ELEC ESMT
EX. DRAINAGE ESMT
WATERLINE ESMT
WORK ORDER 4553.84
EX. WATERLINE ESMT
UTILITY EASEMENT
EXIST. 42" WATER
DRAWING PLAN REQUIRED FOR FUTURE BUILDING PERMIT
COVID TUNNEL LOCATION
EX. WATERLINE ESMT
FFE=5288.17
EXISTING MALL CORRIDOR LEVEL ELEV. 5298.38
PARCEL A-1-A-1-A-1-A
FF=5298.40
FINISH FLOOR ELEV: 5298.38
TOP DECK ELEV: 5297.71
MIDDLE DECK ELEV: 5285.71
BOTTOM DECK ELEV: 5274.38
A4-A C505
A4-B C505
SEE SHEET C202

INSET "A"

SCALE: 1" = 40'

DRAINAGE CERTIFICATION

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3/21/17
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BUILDING PERMIT

HUITT-ZOLLARS
Huitt-Zollars, Inc. Rio Rancho
333 Rio Rancho Drive NE, Suite 101
Rio Rancho, New Mexico 87124
Phone (505) 892-5141 Fax (505) 892-3259

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MODULUS ARCHITECTS
220 COPPER AVE. N.W. SUITE 350
ALBUQUERQUE, NEW MEXICO 87102
PHONE (505) 338-1499 FAX (505) 338-1498

SCOTT A. EDDINGS NEW MEXICO 12856 REGISTERED PROFESSIONAL ENGINEER
7/20/15

PROJECT TITLE: WINROCK SECTION 2 AND 4
WINROCK TOWN CENTER
ALBUQUERQUE, NEW MEXICO

JOB NO. R3036899.01
DRAWN BY: KLS
PROJECT MANAGER: SCOTT EDDINGS P.E.
SHEET TITLE: GRADING PLAN

DATE: 7/20/15
SCALE: 1"=40'
sheet- 7
C201
of- 13

Plotted: 3/21/2017 3:25:17 PM, By: TaKoya, Linda
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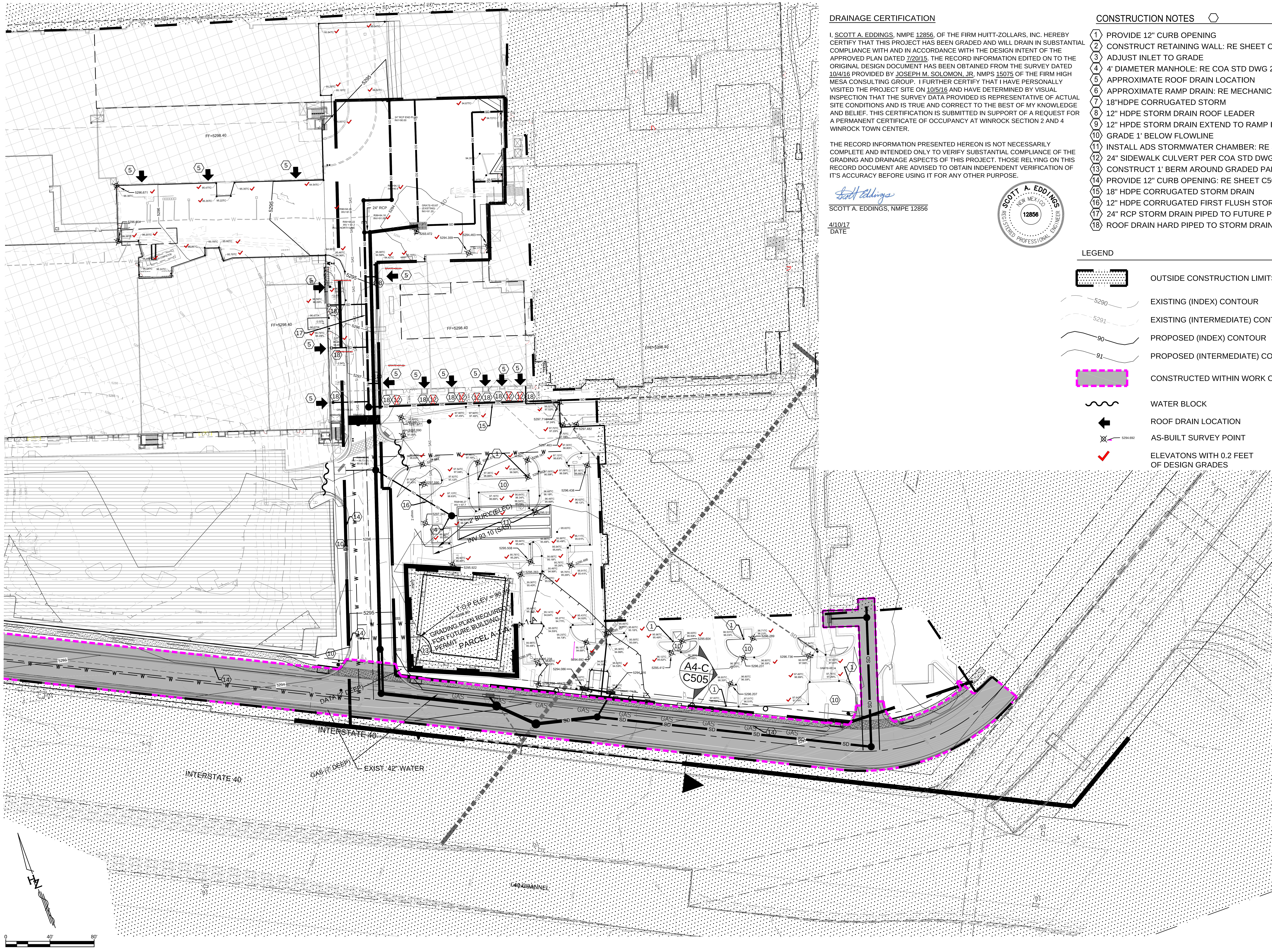

DRAINAGE CERTIFICATION

I, SCOTT A. EDDINGS, NMPE 12856, OF THE FIRM HUITT-ZOLLARS, INC. 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 7/20/15. THE RECORD INFORMATION EDITED ON TO THE ORIGINAL DESIGN DOCUMENT HAS BEEN OBTAINED FROM THE SURVEY DATED 10/4/16 PROVIDED BY JOSEPH M. SOLOMON, JR, NMPS 15075 OF THE FIRM HIGH MESA CONSULTING GROUP. I FURTHER CERTIFY THAT I HAVE PERSONALLY VISITED THE PROJECT SITE ON 10/5/16 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 A PERMANENT CERTIFICATE OF OCCUPANCY AT WINROCK SECTION 2 AND 4 WINROCK TOWN CENTER.

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Scott Eddings

SCOTT A. EDDINGS, NMPE 12856

4/10/17
DATE

SCOTT A. EDDINGS NEW MEXICO 12856 REGISTERED PROFESSIONAL ENGINEER

CONSTRUCTION NOTES

1. PROVIDE 12" CURB OPENING
2. CONSTRUCT RETAINING WALL: RE SHEET C504
3. ADJUST INLET TO GRADE
4. 4' DIAMETER MANHOLE: RE COA STD DWG 2102
5. APPROXIMATE ROOF DRAIN LOCATION
6. APPROXIMATE RAMP DRAIN: RE MECHANICAL PLANS
7. 18"HDPE CORRUGATED STORM
8. 12" HDPE STORM DRAIN ROOF LEADER
9. 12" HPDE STORM DRAIN EXTEND TO RAMP INLET
10. GRADE 1' BELOW FLOWLINE
11. INSTALL ADS STORMWATER CHAMBER: RE SHEETS C501-C504
12. 24" SIDEWALK CULVERT PER COA STD DWG 2236
13. CONSTRUCT 1' BERM AROUND GRADED PAD
14. PROVIDE 12" CURB OPENING: RE SHEET C505
15. 18" HDPE CORRUGATED STORM DRAIN
16. 12" HDPE CORRUGATED FIRST FLUSH STORM DRAIN
17. 24" RCP STORM DRAIN PIPED TO FUTURE POND
18. ROOF DRAIN HARD PIPED TO STORM DRAIN

LEGEND

- OUTSIDE CONSTRUCTION LIMITS
- 5290 EXISTING (INDEX) CONTOUR
- 5291 EXISTING (INTERMEDIATE) CONTOUR
- 90 PROPOSED (INDEX) CONTOUR
- 91 PROPOSED (INTERMEDIATE) CONTOUR
- CONSTRUCTED WITHIN WORK ORDER 4553.84
- WATER BLOCK
- ROOF DRAIN LOCATION
- 5294.692 AS-BUILT SURVEY POINT
- ELEVATONS WITH 0.2 FEET OF DESIGN GRADES

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MODULUS ARCHITECTS
220 COPPER AVE. N.W. SUITE 350
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PHONE (505) 338-1499 FAX (505) 338-1498

SCOTT A. EDDINGS NEW MEXICO 12856 REGISTERED PROFESSIONAL ENGINEER
7/20/15

BUILDING PERMIT

PROJECT TITLE
WINROCK SECTION 2 AND 4
WINROCK TOWN CENTER
ALBUQUERQUE, NEW MEXICO

PROJECT MANAGER
SCOTT EDDINGS P.E.

JOB NO.
R303699.01

DRAWN BY:
KLS

SHEET TITLE
GRADING PLAN

HUITT-ZOLLARS
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Phone (505) 892-5141 Fax (505) 892-3259

DATE: 7/20/15
SCALE: 1"=40'
sheet- 8
C202
of- 13

Plotted: 5/23/2017 6:02:15 AM, By:Eddings, Scott
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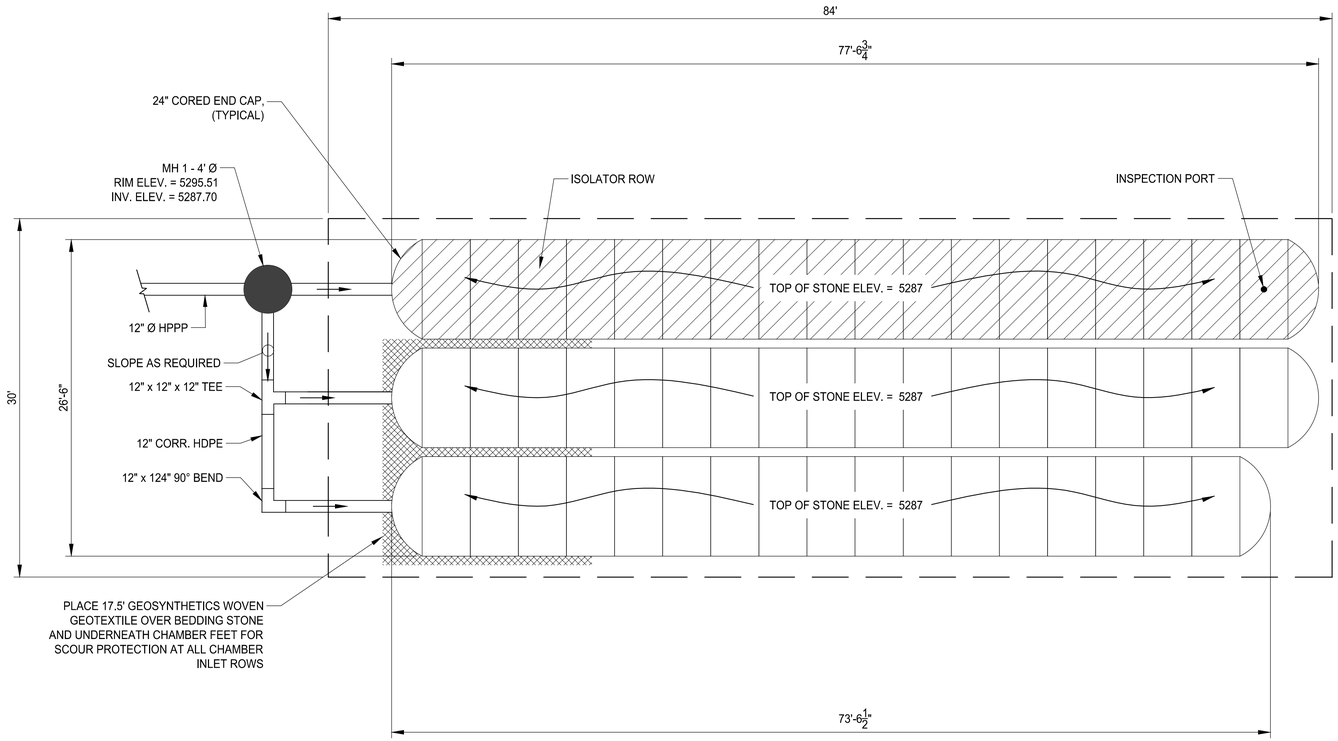

B1 STORM WATER RETENTION PLAN
NTS

DRAINAGE CERTIFICATION

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SCOTT A. EDDINGS, NMPE 12856

3/21/17
DATE

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SCOTT A. EDDINGS NEW MEXICO 12856 REGISTERED PROFESSIONAL ENGINEER
7/20/15

PROJECT TITLE: WINROCK SECTION 2 AND 4
WINROCK TOWN CENTER
ALBUQUERQUE, NEW MEXICO

PROJECT MANAGER: SCOTT EDDINGS P.E.
JOB NO. 303699.01
DRAWN BY: VKL
SHEET TITLE: STORM WATER RETENTION PLAN

DATE: 07/20/15
SCALE: N.T.S.
sheet- 9
C501
of- 13

Plotted: 3/21/2017 1:45:51 PM, By:Tafoya, Linda
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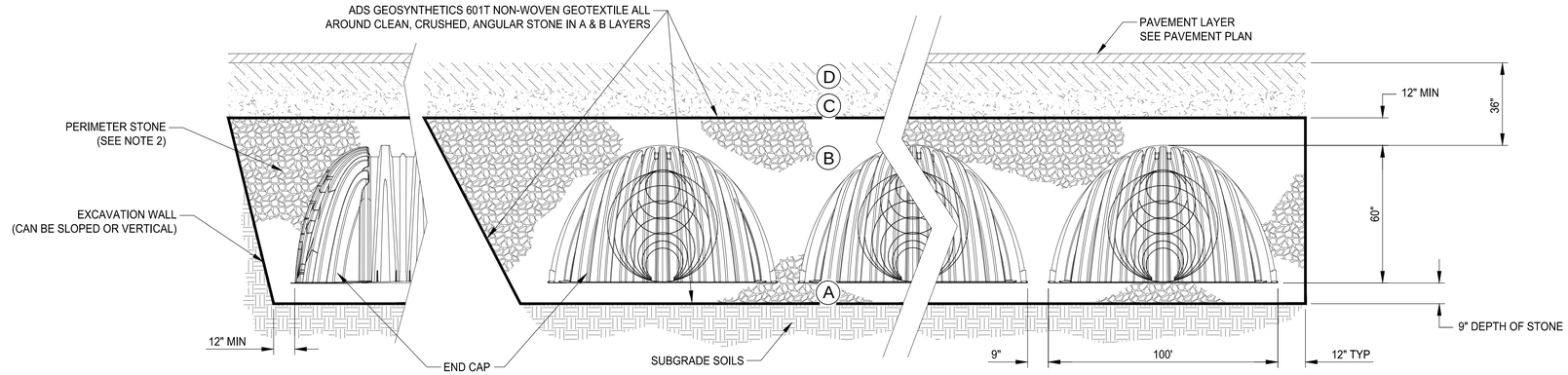
MATERIAL LOCATION		DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENTS
D	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	ANY SOIL/ ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE RQUIREMENTS	N/ A	PRAPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIALS AND PREPARATION REQIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE, NOMINAL SIZE DISTRIBUTION BETWEEN 3/4-2 INCH	AASHTO M43[1] 3, 4	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE, NOMINAL SIZE DISTRIBUTION BETWEEN 3/4-2 INCH	AASHTO M43[1] 3, 4	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. [2 3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT.



NOTES:

1. "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
2. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
3. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' .

A1 ACCEPTABLE FILL MATERIALS: STORMTECH MC-4500 CHAMBER SYSTEMS
NTS

DRAINAGE CERTIFICATION

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SCOTT A. EDDINGS, NMPE 12856

3/21/17
DATE

SCOTT A. EDDINGS NEW MEXICO 12856 REGISTERED PROFESSIONAL ENGINEER

BUILDING PERMIT

HUITT-ZOLLARS
Huitt-Zollars, Inc. Rio Rancho
333 Rio Rancho Drive NE, Suite 101
Rio Rancho, New Mexico 87124
Phone (505) 892-5141 Fax (505) 892-3259

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MODULUS ARCHITECTS
220 COPPER AVE. N.W. SUITE 350
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SCOTT A. EDDINGS NEW MEXICO 12856 REGISTERED PROFESSIONAL ENGINEER
7/20/15

PROJECT TITLE: WINROCK SECTION 2 AND 4
WINROCK TOWN CENTER
ALBUQUERQUE, NEW MEXICO
JOB NO. 303689.01
DRAWN BY: VKL
PROJECT MANAGER: SCOTT EDDINGS P.E.
SHEET TITLE: STORM WATER RETENTION - SECTION

DATE: 07/20/15
SCALE: N.T.S.
sheet- 10
C502
of- 13

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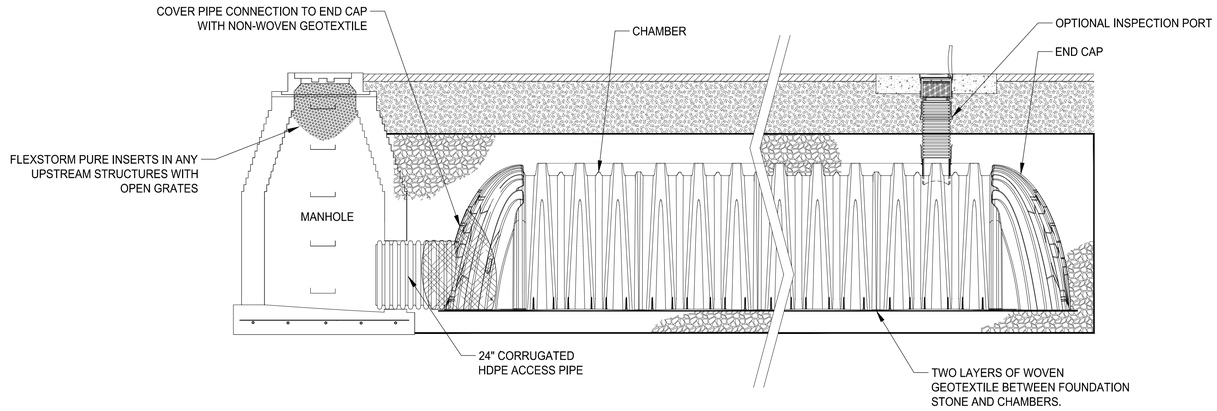


C1 ISOLATOR ROW DETAIL
NTS

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW THROUGH OUTLET PIPE^Ji) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY^Jii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

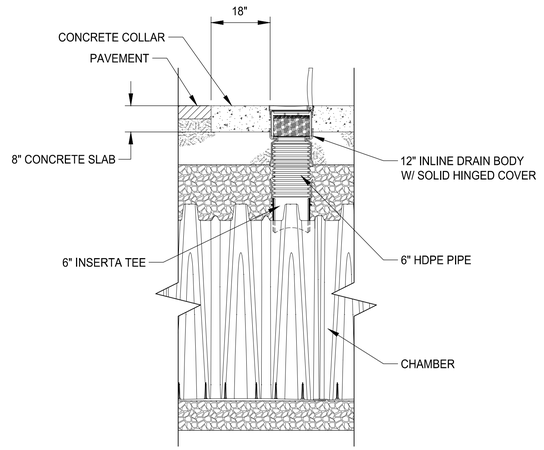
STEP 2) CLEAN OUT ISOLATOR ROW USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.^J
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.



B3 6" INSPECTION PORT DETAIL
NTS

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SCOTT A. EDDINGS, NMPE 12856

3/21/17
DATE

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MODULUS ARCHITECTS
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SCOTT A. EDDINGS NEW MEXICO 12856 REGISTERED PROFESSIONAL ENGINEER
7/20/15

BUILDING PERMIT

PROJECT TITLE: WINROCK SECTION 2 AND 4
WINROCK TOWN CENTER
ALBUQUERQUE, NEW MEXICO

PROJECT MANAGER: SCOTT EDDINGS P.E.
JOB NO. 303699.01
DRAWN BY: VKL

SHEET TITLE: STORM WATER RETENTION - DETAILS

DATE: 07/20/15
SCALE: N.T.S.
sheet- 11
C503
of- 13

Plotted: 3/21/2017 1:46:03 PM, By: TiaNya Linda
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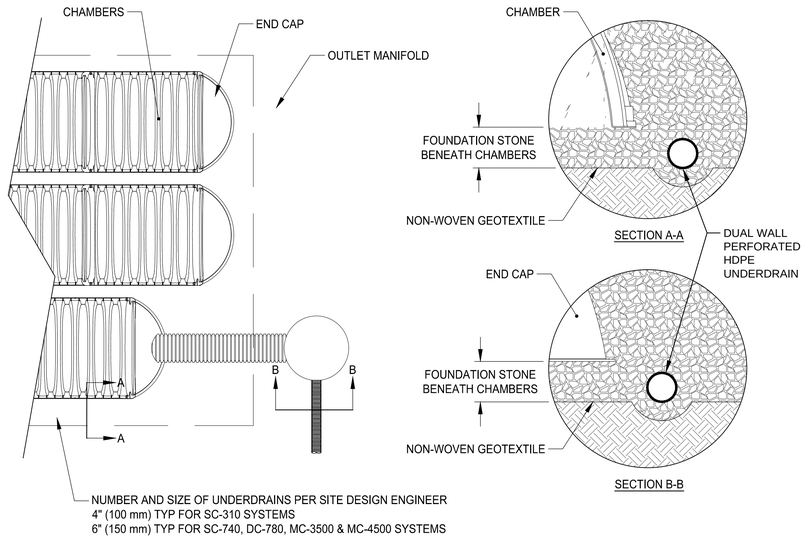
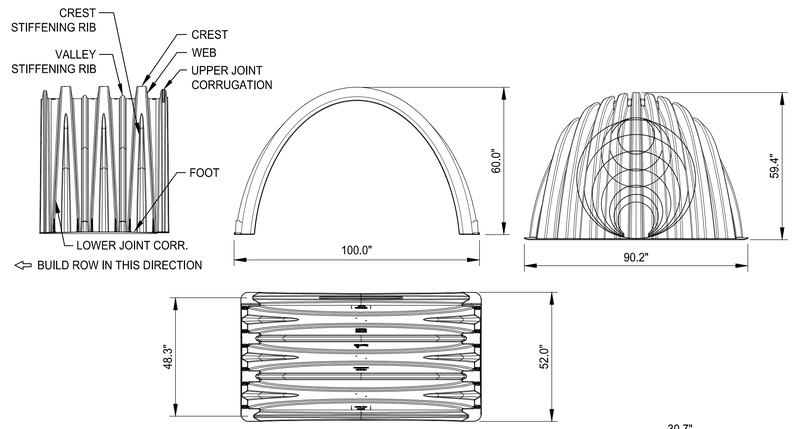


C1 UNDERDRAIN DETAIL
NTS



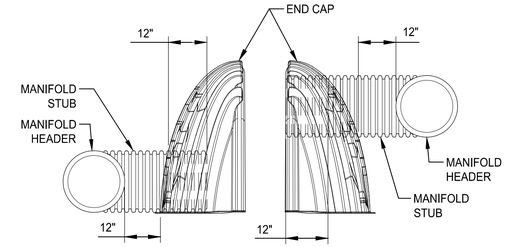
NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	100.0" X 60.0" X 48.3"
CHAMBER STORAGE	106.5 CUBIC FEET
MINIMUM INSTALLED STORAGE*	162.6 CUBIC FEET
WEIGHT	130.0 lbs.

NOMINAL END CAP SPECIFICATIONS

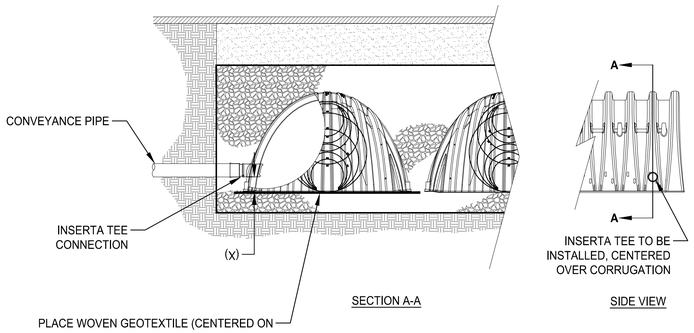
SIZE (W X H X INSTALLED LENGTH)	90.2" X 59.4" X 30.7"
END CAP STORAGE	35.7 CUBIC FEET
MINIMUM INSTALLED STORAGE*	108.7 CUBIC FEET
WEIGHT	135.0 lbs.

*ASSUMES 12" STONE ABOVE, 9" STONE FOUNDATION AND BETWEEN CHAMBERS, 12" STONE PERIMETER IN FRONT OF END CAPS AND 40% STONE POROSITY.



NOTE: MANIFOLD STUB MUST BE LAID HORIZONTAL FOR A PROPER FIT IN END CAP OPENING.

C5 END CAP INSERTION DETAIL
NTS



MAX DIAMETER OF INSERTA TEE	HEIGHT FROM BASE OF CHAMBER (X)
6"	4"
10"	4"
10"	4"
12"	6"
12"	8"
INSERTA TEE FITTINGS AVAILABLE FOR SDR 26, SDR 35, SCH 40 IPS GASKETED & SOLVENT WELD, N-12, HP STORM, C-900 OR DUCTILE IRON	

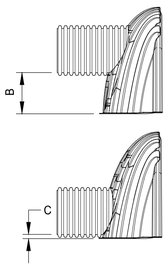
NOTE:
PART NUMBERS WILL VARY BASED ON INLET PIPE MATERIALS. CONTACT STORMTECH FOR MORE INFORMATION.

A1 INSERTA TEE DETAIL
NTS

STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"

STUB	B	C
6" (150 mm)	42.54" (1.081 m)	---
	---	0.86"
8"	40.50"	---
	---	1.01"
10"	38.37"	---
	---	1.33"
12"	35.69"	---
	---	1.55"
15"	32.72"	---
	---	1.70"
18"	29.36"	---
	---	1.97"
24"	23.05"	---
	---	2.26"
30"	---	2.95"
36"	---	3.25"
42"	---	3.55"

NOTE: ALL DIMENSIONS ARE NOMINAL



A3 SPECIFICATION
NTS

DRAINAGE CERTIFICATION

I, SCOTT A. EDDINGS, NMPE 12856, OF THE FIRM HUITT-ZOLLARS, INC. 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 7/20/15. THE RECORD INFORMATION EDITED ON TO THE ORIGINAL DESIGN DOCUMENT HAS BEEN OBTAINED FROM THE SURVEY DATED 10/4/16 PROVIDED BY JOSEPH M. SOLOMON, JR, NMPS 15075 OF THE FIRM HIGH MESA CONSULTING GROUP. I FURTHER CERTIFY THAT I HAVE PERSONALLY VISITED THE PROJECT SITE ON 10/5/16 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 A PERMANENT CERTIFICATE OF OCCUPANCY AT WINROCK SECTION 2 AND 4 WINROCK TOWN CENTER.

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 IT'S ACCURACY BEFORE USING IT FOR ANY OTHER PURPOSE.

SCOTT A. EDDINGS, NMPE 12856

3/21/17
DATE

HUITT-ZOLLARS
Huitt-Zollars, Inc. Rio Rancho
333 Rio Rancho Drive NE, Suite 101
Rio Rancho, New Mexico 87124
Phone (505) 892-5141 Fax (505) 892-3259

BUILDING PERMIT

REV	DATE	BY	REVISION
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5			
4			
3			
2			
1			

MODULUS ARCHITECTS
220 COPPER AVE. N.W. SUITE 350
ALBUQUERQUE, NEW MEXICO 87102
PHONE (505) 338-1499 FAX (505) 338-1498

SCOTT A. EDDINGS NEW MEXICO 12856 REGISTERED PROFESSIONAL ENGINEER
7/20/15

PROJECT TITLE: WINROCK SECTION 2 AND 4
WINROCK TOWN CENTER
ALBUQUERQUE, NEW MEXICO
PROJECT MANAGER: SCOTT EDDINGS P.E.
JOB NO. 303689.01
DRAWN BY: VKL
SHEET TITLE: STORM WATER RETENTION - DETAILS

DATE: 07/20/15
SCALE: N.T.S.
sheet- 12
C504
of- 13

Plotted: 3/21/2017 1:46:12 PM, By: TaNoya, Linda
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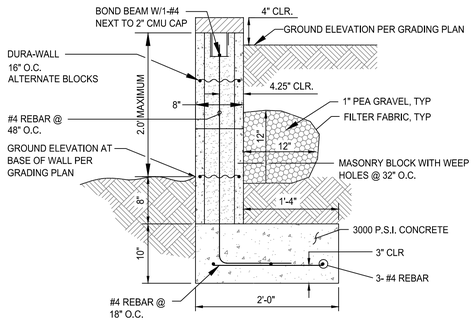
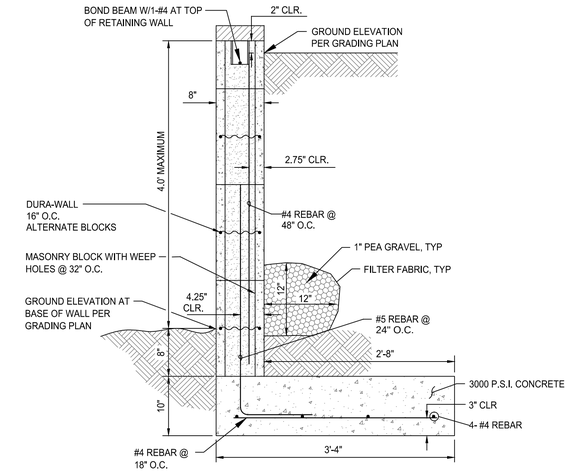


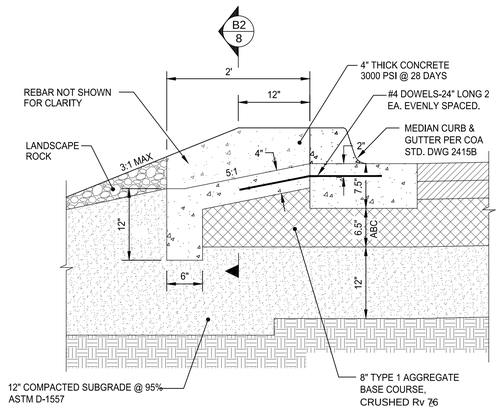
D1 TYPE A RETAINING WALL

0 TO 2'



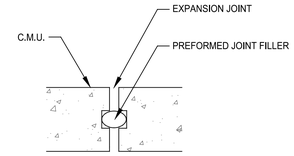
B1 TYPE B-RETAINING WALL

2' TO 4'



A1 CURB OPENING DETAIL

NTS



D2 EXPANSION JOINT DETAIL

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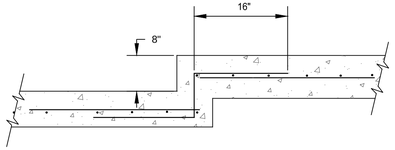
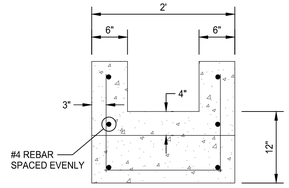


C2 FOOTING STEP DETAIL

NTS



SECTION DETAIL

N.T.S.

B2 SECTION DETAIL

NTS

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SCOTT A. EDDINGS, NMPE 12856

3/21/17
DATE

SCOTT A. EDDINGS NEW MEXICO 12856 REGISTERED PROFESSIONAL ENGINEER

GENERAL NOTES

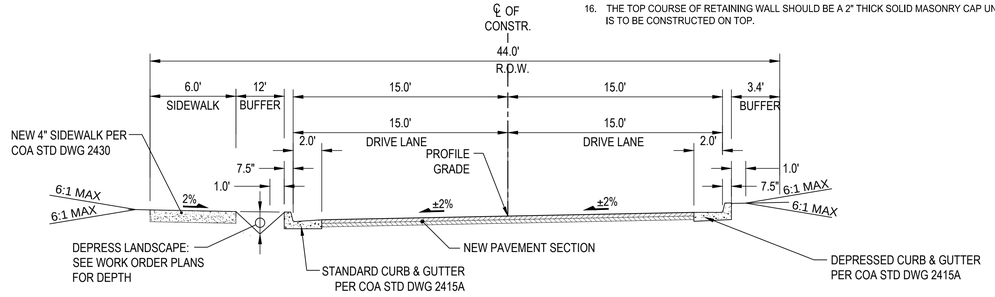
1. THE WALL TYPES ON THIS PLAN INDICATE THE TYPE OF RETAINING WALL TO BE CONSTRUCTED, DETAILED ON SHEET 2-27 & 2-28, TO MATCH SURFACE ELEVATIONS ON THE RETAINING WALL SHEETS. A MINIMUM OF ONE ADDITIONAL COURSE (8" HIGH) IS REQUIRED, BURIED BELOW THE LOWER SURFACE DESIGN ELEVATION. WHEN THE LOWER SLOPE IS SEVERE AND/OR THE FOOTER IS WIDE, AN ADDITIONAL BURIED COURSE MAY BE REQUIRED.
2. PAY QUANTITIES INCLUDE THE COST OF EXCAVATION, GRADING, COMPACTION, FOOTERS, AND ALL COURSES (INCLUDING BURIED COURSES) OF CMU WALL WITH REINFORCING, GROUT, BOND BEAMS, EXPANSION JOINTS, WATERPROOFING GRAVEL DRAIN AND BACKFILL ALL PER SPECIFICATIONS.
3. FINAL TYPE AND HEIGHTS OF CMU WALL, AS INDICATED ON THIS SHEET.
4. CONTRACTOR SHALL APPLY ANTI-GRAFFITI COATINGS TO ALL PERIMETER WALLS. CONTRACTOR SHALL USE PROSOCO DEFACER ERASER OR APPROVED EQUIVALENT.

RETAINING WALL GENERAL NOTES

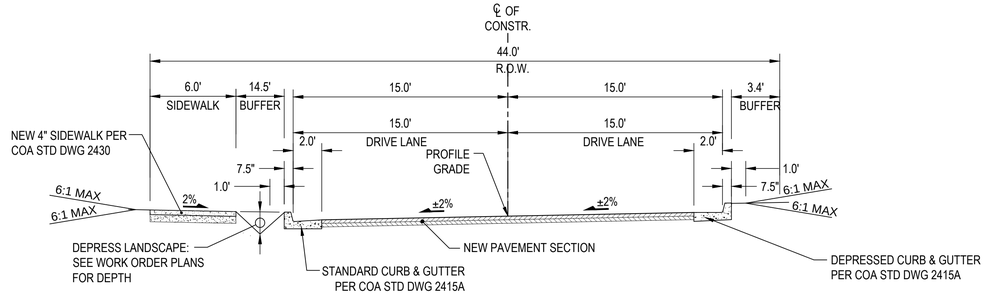
1. WHERE RETAINING WALLS ARE INSTALLED, WEEP HOLES SHALL BE PROVIDED IN THE PORTION OF THE WALL BELOW GRADE, TO RELIEVE POTENTIAL HYDROSTATIC PRESSURE, BY ELIMINATING THE MORTAR FROM ALTERNATING VERTICAL JOINTS IN EVERY OTHER COURSE OF BLOCK BELOW GRADE. NO TURNED BLOCKS WILL BE ALLOWED.

MASONRY WALL CONSTRUCTION NOTES:

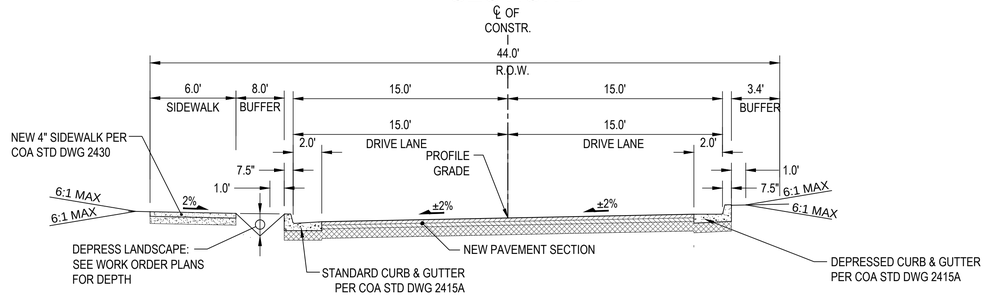
1. RETAINING WALLS ARE REQUIRED WHENEVER THE DIFFERENCE IN SURFACE ELEVATIONS EXCEED 1.50 FEET (2 EXPOSED CMU COURSES)
2. ALL MASONRY UNITS SHALL BE TYPE 1, GRADE N WITH A COMPRESSIVE STRENGTH OF 1900 PSI (NET AREA). F'M=1500 PSI
3. MORTAR SHALL BE TYPE S.
4. GROUT - F' =2000 PSI
5. CELLS CONTAINING REBAR SHALL BE GROUTED SOLID FROM THE BOTTOM TO THE TOP OF THE WALL IN ACCORDANCE WITH THE UNIFORM BUILDING CODE.
6. PROVIDE EXPANSION JOINTS AT 20' O.C.
7. THE BACK OF WALLS BELOW GRADE SHALL BE WATERPROOFED PRIOR TO BACKFILLING.
8. ALL CELLS BELOW GRADE SHALL BE GROUTED SOLID.
9. LAP ALL REBAR 40 BAR DIAMETERS, UNLESS OTHERWISE NOTED.
10. ALL HORIZONTAL REINFORCING IN BOND BEAMS SHALL BE CONTINUOUS AROUND CORNERS OR HAVE CORNER BARS OF THE SAME SIZE AND A LAP OF 48 BAR DIAMETERS OR 24" MINIMUM. VERTICAL STEEL SHALL CONTINUE THROUGH BOND BEAMS.
11. PROVIDE STANDARD TRUSS TYPE JOINT REINFORCING AT 16" O.C. (ALTERNATE COURSES). USE PREFABRICATED CORNERS AND TEES AT ALL WALL CORNERS AND INTERSECTIONS RESPECTIVELY.
12. MIN. CONCRETE COMPRESSIVE STRENGTH SHALL BE 3000 PSI.
13. UNLESS OTHERWISE SPECIFIED ON THESE PLANS OR WITHIN THE GEOTECHNICAL INVESTIGATION REPORT FOR THIS SITE, THE SUBGRADE UNDER FOOTING SHALL BE COMPACTED TO 95% ASTM D-1557, AND ALL BACKFILL SHALL BE COMPACTED TO 90% ASTM D-1557 IN NON-PAVED AREAS, AND 95% ASTM D-1557 IN PAVED AREAS.
14. REINFORCING STEEL SHALL COMFORM TO ASTM A-615, GRADE 60.
15. ALL RETAINING WALLS REPRESENTED ON THIS SHEET HAVE BEEN DESIGNED TO ACCEPT A 5' TO 6' PRIVACY WALL.
16. THE TOP COURSE OF RETAINING WALL SHOULD BE A 2" THICK SOLID MASONRY CAP UNLESS A PRIVACY WALL IS TO BE CONSTRUCTED ON TOP.



SECTION A



SECTION B



SECTION C

A4 ROAD C SECTIONS

NTS

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REV	DATE	BY	REVISION
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SCOTT A. EDDINGS NEW MEXICO 12856 REGISTERED PROFESSIONAL ENGINEER
7/20/15

BUILDING PERMIT

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PROJECT MANAGER: SCOTT EDDINGS P.E.
DRAWN BY: VKL
JOB NO. 303899.01
SHEET TITLE: DETAILS

DATE: 07/20/15
SCALE: 1"=100'
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