CITY OF ALBUQUERQUE

May 13, 2014

Bruce Stidworthy, P.E.
Bohannan Huston, Inc.
7500 Jefferson Ne CY 1
Albuquerque, NM 87109

Re: Affinity Senior Housing Drainage Management Plan and Grading Plan Engineer's Stamp Date 5-9-14 (A11D014)

Dear Mr. Stidworthy,

Based upon the information provided in your submittal received 5-9-14, the above referenced plans are approved for Site Plan for Building Permit action by the DRB contingent on the vacation of the easements.

If you have any questions, you can contact me at 924-3986.

Sincerely,

Curtis Cherne, P.E.
Principal Engineer, Hydrology
Planning Dept.

C: e-mail

PO Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

Project Title: Affinity at Albuquerque Senior Housing Building Permit #: _____ City Drainage #: A11D014

DRB#: 1000875 EPC#: _____ Work Order#: _____

Legal Description: Lots B-1 & D-1, Fineland Development

City Address: Northeast corner of McMahon & Fineland

Engineering Firm: Bohannan Huston, Inc. Contact: Bruce Stidworthy

Address: 7500 Jefferson St NE Courtyard 1

Phone#: (505) 823-1000 Fax#: (505) 798-7988 E-mail: bstidworthy@bhinc.com

Owner: Inland Group Contact: Robert Ketner

Address: 1620 N. Mamer Rd Bldg. B, Spokane, Washington 99203

Phone#: (509) 321-3204 Fax#: (509) 922-2251 E-mail: robertk@inlandconstruction.com

Architect: Consensus Planning, Inc. Contact: Jim Strozier

Address: 302 Eight Street NW

Phone#: (505) 764-9801 Fax#: (505) 842-5495 E-mail: cp@consensusplanning.com

Surveyor: _____ Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

Contractor: _____ Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

TYPE OF SUBMITTAL:

- ____ DRAINAGE REPORT
- ____ DRAINAGE PLAN 1st SUBMITTAL
- X DRAINAGE PLAN RESUBMITTAL
- ____ CONCEPTUAL G & D PLAN
- X GRADING PLAN
- ____ EROSION & SEDIMENT CONTROL PLAN (ESC)
- ____ ENGINEER'S CERT (HYDROLOGY)
- ____ CLOMR/LOMR
- ____ TRAFFIC CIRCULATION LAYOUT (TCL)
- ____ ENGINEER'S CERT (TCL)
- ____ ENGINEER'S CERT (DRB SITE PLAN)
- ____ ENGINEER'S CERT (ESC)
- ____ SO-19
- ____ OTHER (SPECIFY)

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

- ____ SIA/FINANCIAL GUARANTEE RELEASE
- ____ PRELIMINARY PLAT APPROVAL
- ____ S. DEV. PLAN FOR SUB'D APPROVAL
- X S. DEV. FOR BLDG. PERMIT APPROVAL
- ____ SECTOR PLAN APPROVAL
- ____ FINAL PLAT APPROVAL
- ____ CERTIFICATE OF OCCUPANCY (PERM)
- ____ CERTIFICATE OF OCCUPANCY (TCL TEMP)
- ____ FOUNDATION PERMIT APPROVAL
- ____ BUILDING PERMIT APPROVAL
- ____ GRADING PERMIT APPROVAL
- ____ PAVING PERMIT APPROVAL
- ____ WORK ORDER APPROVAL
- ____ GRADING CERTIFICATION
- ____ SO-19 APPROVAL
- ____ ESC PERMIT APPROVAL
- ____ ESC CERT. ACCEPTANCE
- ____ OTHER (SPECIFY)

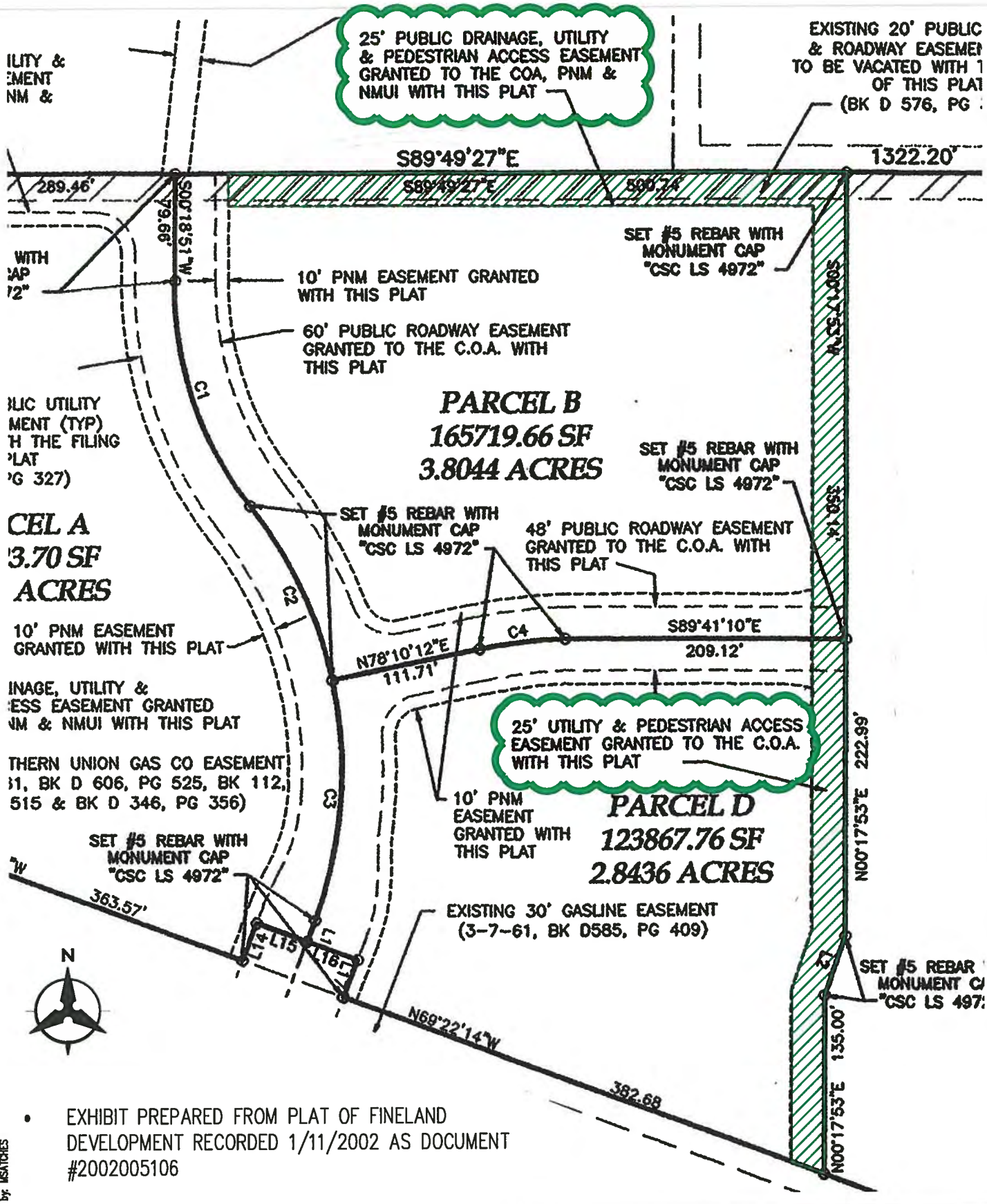
RECEIVED
MAY 09 2014
LAND DEVELOPMENT SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED: ____ Yes X No ____ Copy Provided

DATE SUBMITTED: May 9, 2014 By: Bruce Stidworthy

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location, and scope to the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the followin

1. **Conceptual Grading and Drainage Plan**: Required for approval of Site Development Plans greater than five (5) acres and Sector Plans
2. **Drainage Plans**: Required for building permits, grading permits, paving permits and site plans less than five (5) acres
3. **Drainage Report**: Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more
4. **Erosion and Sediment Control Plan:** Required for any new development and redevelopment site with 1-acre or more of land disturbing area, including project less than 1-acre than are part of a larger common plan of development



- EXHIBIT PREPARED FROM PLAT OF FINELAND DEVELOPMENT RECORDED 1/11/2002 AS DOCUMENT #2002005106
- EASEMENTS HIGHLIGHTED IN GREEN TO BE VACATED

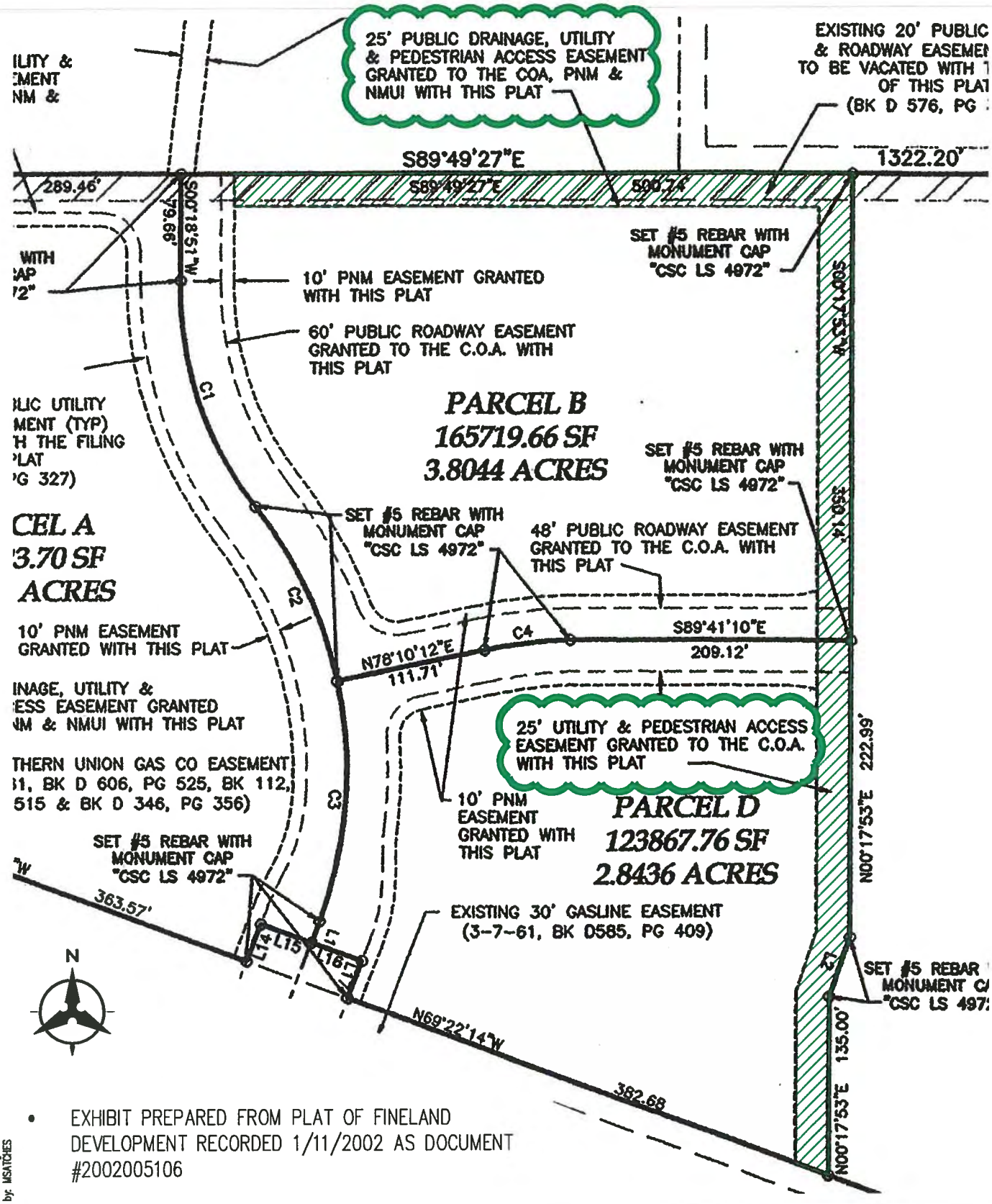
P:\20140292\COP\Exhibits\Easement Vacation.dwg
Wed, 16-Apr-2014 - 4:01:pm, Plotted by: MSATCHES

Bohannan Huston
www.bhinc.com
800.877.5332

AFFINITY AT ALBUQUERQUE SENIOR HOUSING

EASEMENT VACATION EXHIBIT

DRAWN BY:	MHS	DATE:	04/18/2014
CHECKED BY:	BJS	PROJECT NO.	20140292



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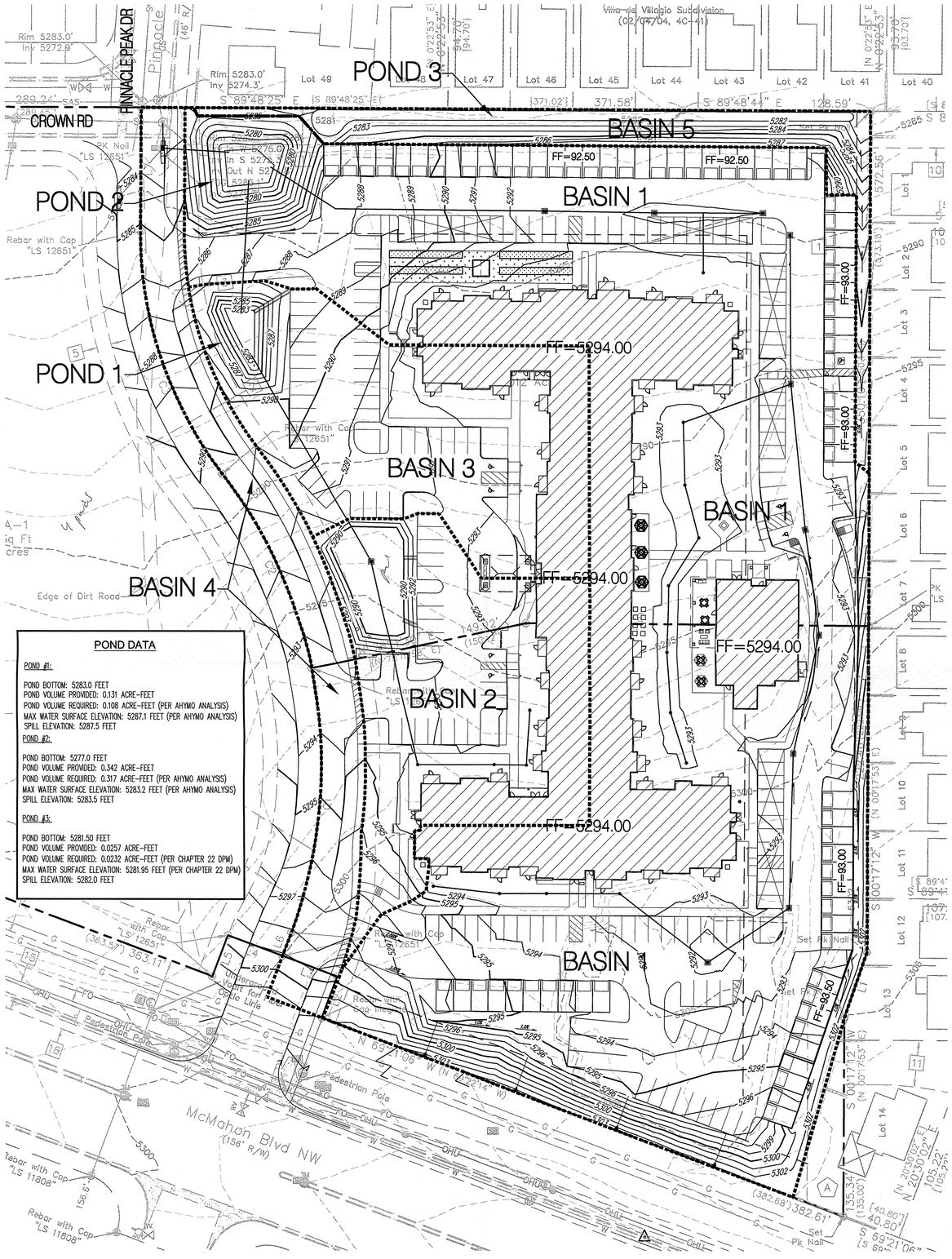


POND DATA

POND #1:

POND BOTTOM: 5283.0 FEET
POND VOLUME PROVIDED: 0.131 ACRE-FEET
POND VOLUME REQUIRED: 0.108 ACRE-FEET (PER AHYMO ANALYSIS)
MAX WATER SURFACE ELEVATION: 5287.1 FEET (PER AHYMO ANALYSIS)
SPILL ELEVATION: 5287.5 FEET

POND #2:

POND BOTTOM: 5277.0 FEET
POND VOLUME PROVIDED: 0.342 ACRE-FEET
POND VOLUME REQUIRED: 0.317 ACRE-FEET (PER AHYMO ANALYSIS)
MAX WATER SURFACE ELEVATION: 5283.2 FEET (PER AHYMO ANALYSIS)
SPILL ELEVATION: 5283.5 FEET

POND #3:

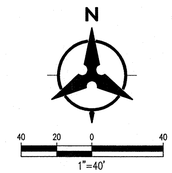
POND BOTTOM: 5281.50 FEET
POND VOLUME PROVIDED: 0.0257 ACRE-FEET
POND VOLUME REQUIRED: 0.0232 ACRE-FEET (PER CHAPTER 22 DPM)
MAX WATER SURFACE ELEVATION: 5281.95 FEET (PER CHAPTER 22 DPM)
SPILL ELEVATION: 5282.0 FEET

DRAINAGE MANAGEMENT PLAN

P:\20140292\CDP\Hydro\20140292DMP01.dwg
Fri, 9-May-2014 - 9:36:am, Plotted by: MSATCHES

AHYMO PROGRAM SUMMARY TABLE (AHYMO-S4) - Ver. S4.01a, Rel: 01a RUN DATE (MON/DAY/YR) =05/08/2014
INPUT FILE = P:\20140292\CDP\Hydro\AHYMO\100YR-NP1-SMALL.HYM USER NO.= AHYMO_Temp_User:20122010

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.		TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
*S AHYMO FILE FOR AFFINITY AT ALBUQUERQUE - ALBUQUERQUE,NM , BH PROJ # 20140292											
*S 100 YEAR - 6 HOUR STORM											
*S											
*S INPUT FILE -- P:\20140292\CDP\HYDRO\AHYMO\100YR-NP1-SMALL.HYM											
*S OUTPUT FILE -- P:\20140292\CDP\HYDRO\AHYMO\100YR-NP1-SMALL.OUT											
START	TIME=0										
LOCATION	ALBUQUERQUE										
RAINFALL TYPE= 1 NOAA 14 .											
*S**********											
*S	----------										
S COMPUTE BASIN DEVELOPED CONDITIONS											
*S	----------										
*S BASIN 1											
COMPUTE NM HYD		B1	-	2	0.00669	17.57	0.611	1.71239	1.5		4.103 PER IMP= 72.00
*S BASIN 2											
COMPUTE NM HYD		B2	-	3	0.0012	3.14	0.108	1.69499	1.5		4.094 PER IMP= 70.00
*S BASIN 3											
COMPUTE NM HYD		B3	-	4	0.00127	3.32	0.114	1.68628	1.5		4.080 PER IMP= 69.00
*S BASIN 4											
COMPUTE NM HYD		B4	-	5	0.00072	2.02	0.072	1.86901	1.5		4.375 PER IMP= 90.00
*S BASIN 5											
COMPUTE NM HYD		B5	-	6	0.00043	0.87	0.025	1.08591	1.5		3.173 PER IMP= 0.00
*S**********											
*S ADDITION OF BASIN 2 TO BASIN 3											
ADD HYD		B2B3	-	20	0.00247	6.46	0.223	1.69027	1.5		
*S ROUTE BASIN B2 & B3 TO POND 1. OUTFLOW BASED ON 6" ORIFICE											
ROUTE RESERVOIR		POND1	-	11	0.00247	1.9	0.223	1.69027	1.8		MAX VOLUME = 0.108 AC-FT ≈ 4704 SF
*S ADDITION OF POND1 TO BASIN 1											
ADD HYD		P1B1	-	21	0.00916	19.08	0.834	1.70638	1.5		
*S ROUTE BASIN B1 TO POND 2. OUTFLOW BASED ON 10" ORIFICE											
ROUTE RESERVOIR		POND2	-	12	0.00916	6.54	0.834	1.70638	1.8		MAX VOLUME = 0.317 AC-FT ≈ 13809 SF



INTRODUCTION:

THE PROJECT IS LOCATED NORTHWEST OF THE INTERSECTION OF MCMAHON BLVD AND UNSER BLVD. THIS SITE IS NOT WITHIN A DEFINED FLOOD ZONE AS SHOWN ON FIRM MAP NUMBER 35001C0104H (THIS SHEET). THE PURPOSE OF THIS SUBMITTAL IS TO PROVIDE A DRAINAGE MANAGEMENT PLAN FOR THE DEVELOPMENT OF AFFINITY OF ALBUQUERQUE SENIOR HOUSING AND REQUEST DRB SITE PLAN FOR BUILDING PERMIT APPROVAL.

EXISTING CONDITIONS:

THE 6.62 ACRE SITE IS CURRENTLY UNDEVELOPED. EXISTING FLOW IS APPROXIMATELY EQUAL TO 9.0 CFS. THE SITE SLOPES TO THE NORTH / NORTHWEST WHERE THE RUNOFF FLOWS INTO AN EXISTING 24"STORM DRAIN IN PINNACLE PEAK DRIVE.

BASED ON A DRAINAGE STUDY FOR VILLA DE VILLAGIO SUBDIVSION DATED FEBRUARY 10, 2003 (COA HYDRO FILE #A11/D9), ALLOWABLE PEAK DISCHARGE FROM THE SITE IS APPROXIMATELY 9.0 CFS.

METHODOLOGY:

THE HYDROLOGIC ANALYSIS PROVIDED WITH THIS DRAINAGE MANAGEMENT PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 22.2 OF THE DPM. THE SITE IS LOCATED WEST OF THE RIO GRANDE WITHIN PRECIPITATION ZONE 1. ALTHOUGH THE SITE IS SMALL ENOUGH TO USE THE "SMALL WATERSHEDS" PROCEDURE GIVEN IN SECTION A.6, WE ELECTED TO USE AHYMO IN ORDER TO MODEL THE STORMWATER FLOWS THROUGH THE TWO PROPOSED PONDS ON THE SITE. LAND TREATMENT PERCENTAGES WERE CALCULATED BASED ON THE ACTUAL CONDITIONS IN EACH ONSITE BASIN AND ARE SUMMARIZED "PROPOSED CONDITIONS BASIN DATA TABLE" ON THIS SHEET.

ALL ONSITE STORM DRAIN PIPES WILL BE SIZED BASED ON GRAVITY FLOW USING THE MANNING'S EQUATION. DETAILED CALCULATIONS FOR PIPES AND INLETS WILL BE PROVIDED WITH THE FINAL GRADING PLAN WHEN GRADING AND BUILDING PERMIT APPROVAL IS REQUESTED.

PROPOSED CONDITIONS:

THE ALLOWABLE DISCHARGE FROM THE SITE WAS FOUND TO BE APPROXIMATELY 7.1 CFS WHEN CONSIDERING THE RUNOFF FROM FINELAND DRIVE (BASIN 4). WITH THE DEVELOPMENT OF THE SITE, THE PROPOSED FLOW IS APPROXIMATELY 6.5 CFS WHICH IS LESS THAN THE ALLOWABLE DISCHARGE.

TO MITIGATE PEAK FLOWS GENERATED WITH PROPOSED CONDITIONS, TWO PONDS HAVE BEEN DESIGNED ONSITE. BOTH PONDS WERE ANALYZED USING AHYMO. DISCHARGE FROM THE PONDS WAS CALCULATED USING THE ORIFICE EQUATION.

POND 2 IS LOCATED AT THE NORTHWEST CORNER OF THE STREET. THE PRIMARY DISCHARGE POINT FOR POND 2 IS A NEW STORM DRAIN TO BE CONNECTED TO AN EXISTING PUBLIC STORM DRAIN MANHOLE AT THE INTERSECTION OF PINNACLE PEAK AND CROWN ROAD. IN THE EVENT THAT THE DISCHARGE PIPE IS PLUGGED, OR IN THE EVENT OF A STORM LARGER THAN THE 100 YEAR STORM, THE POND WILL OVERFLOW TO THE RIGHT-OF-WAY OF FINELAND DRIVE (AKA PINNACLE PEAK). UNDER EXISTING CONDITIONS, THE TOP OF CURB ELEVATION OF PINNACLE PEAK AT THE INTERSECTION WITH CROWN ROAD IS APPROXIMATELY 5283.78. THE EXISTING GRADE ALONG THE NORTH PROPERTY LINE OF THE SITE (DELINEATED WITH AN EXISTING CMU WALL) WHICH ADJOINS EXISTING RESIDENTIAL LOTS, VARIES BETWEEN 5281 AND 5282. THEREFORE, THE EXISTING GRADE ALONG MOST OF THE NORTH PROPERTY LINE IS ABOUT 2' LOWER THAN THE TOP OF CURB OF PINNACLE PEAK. IN ORDER TO ENSURE THAT ANY OVERFLOW FROM POND 2 DOES NOT IMPACT THE RESIDENTIAL LOTS TO THE NORTH, WE ARE PROVIDING A CAST-IN-PLACE CONCRETE WALL ALONG THE NORTH SIDE OF POND 2. THE WALL WILL BE APPROXIMATELY 3' TALL, WITH A TOP-OF-WALL ELEVATION OF 5285.0.

BASIN 5 CONSISTS OF SMALL LANDSCAPED AREAS BEHIND THE GARAGES ON THE NORTH SIDE OF THE SITE AND A SMALL PORTION OF THE EAST SIDE OF THE SITE. THERE IS NO IMPERVIOUS AREA WITHIN BASIN 5. ALL OF THE GARAGE ROOFS DRAIN TO THE PARKING LOTS AND DRIVEWAYS. FLOWS FROM BASIN 5 (PEAK DISCHARGE IS LESS THAN 1.0 CFS) WILL BE RETAINED IN A SHALLOW WATER HARVESTING AREA WITHIN THE LANDSCAPED AREA NEAR THE NORTH PROPERTY LINE. THE TOTAL VOLUME FOR THE 100 YR – 10 DAY STORM WAS CALCULATED TO BE APPROXIMATELY 1010 CF USING CHAPTER 22 SECTION A5 OF THE DPM.

V_{360} = (.28 ACRES X .99 INCHES) / 12 = .0232 AC-FT (APPROX 1010 CF)
A_0 = 0
THEREFORE: V_{100DAY} = .0232 AC-FT (APPROX 1010 CF)

THE WATER HARVESTING AREA WAS SIZED TO BE APPROXIMATELY 1120CF, APPROXIMATELY 10% LARGER THAN THE TOTAL VOLUME REQUIRED.

CONCLUSION:

THE PEAK DISCHARGE FROM THE SITE IS 6.5 CFS WHICH IS LESS THAN THE ALLOWABLE PEAK DISCHARGE RATE, THEREFORE WE ARE IN CONFORMANCE WITH CITY OF ALBUQUERQUE HYDROLOGY REQUIREMENTS AND REQUEST BUILDING PERMIT APPROVAL.

PREPARED BY: MATTHEW SATCHES 5/9/14

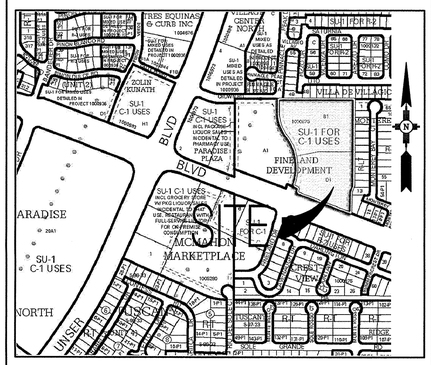
UNDER THE SUPERVISION OF: BRUCE STIDWORTHY 5/9/14

BRUCE J. STIDWORTHY NEW MEXICO 14523 REGISTERED PROFESSIONAL ENGINEER

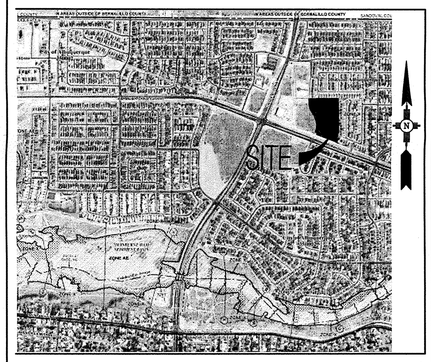
AFFINITY AT ALBUQUERQUE
Proposed Conditions Basin Data Table

This table is based on the DPM Section 22.2, Zone: 1

Basin ID	Area (SQ. FT)	Area (AC.)	Land Treatment Percentages A	B	C	D
Proposed						
1	186560	4.28	0.0%	0.0%	28.0%	72.0%
2	33532	0.77	0.0%	0.0%	30.0%	70.0%
3	35529	0.82	0.0%	0.0%	31.0%	69.0%
4	20333	0.47	0.0%	0.0%	10.0%	90.0%
5	12243	0.28	0.0%	0.0%	100.0%	0.0%
TOTAL	288197	6.62				



N.T.S. VICINITY MAP ZONE ATLAS A-11-Z



N.T.S. FIRM MAP NUMBER 35001C0104H

RECEIVED MAY 09 2014 LAND DEVELOPMENT SECTION

AFFINITY

DRAINAGE MANAGEMENT PLAN

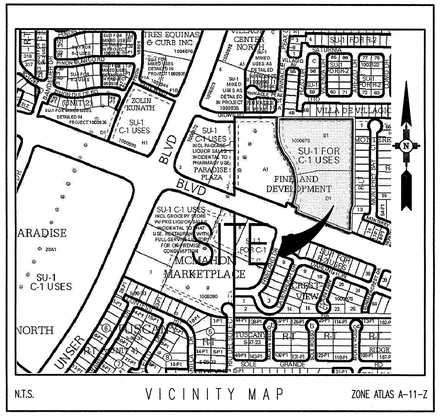
Prepared For:
Inland Group
1620 N. Mamer Rd., Bldg. B
Spokane, WA 99203

Prepared By:
Consensus Planning, Inc.
Bohannan Huston, Inc.
The Architects Office, PLLC

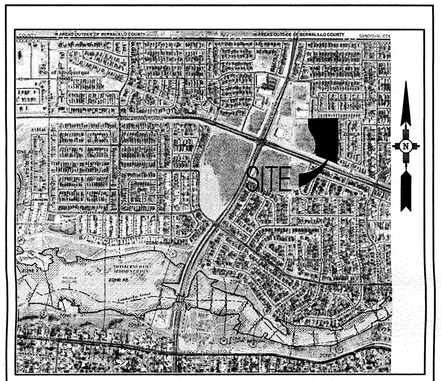
Bohannan Huston
www.bhinc.com 800.877.5332

CONSENSUS PLANNING

Sheet 1 of X



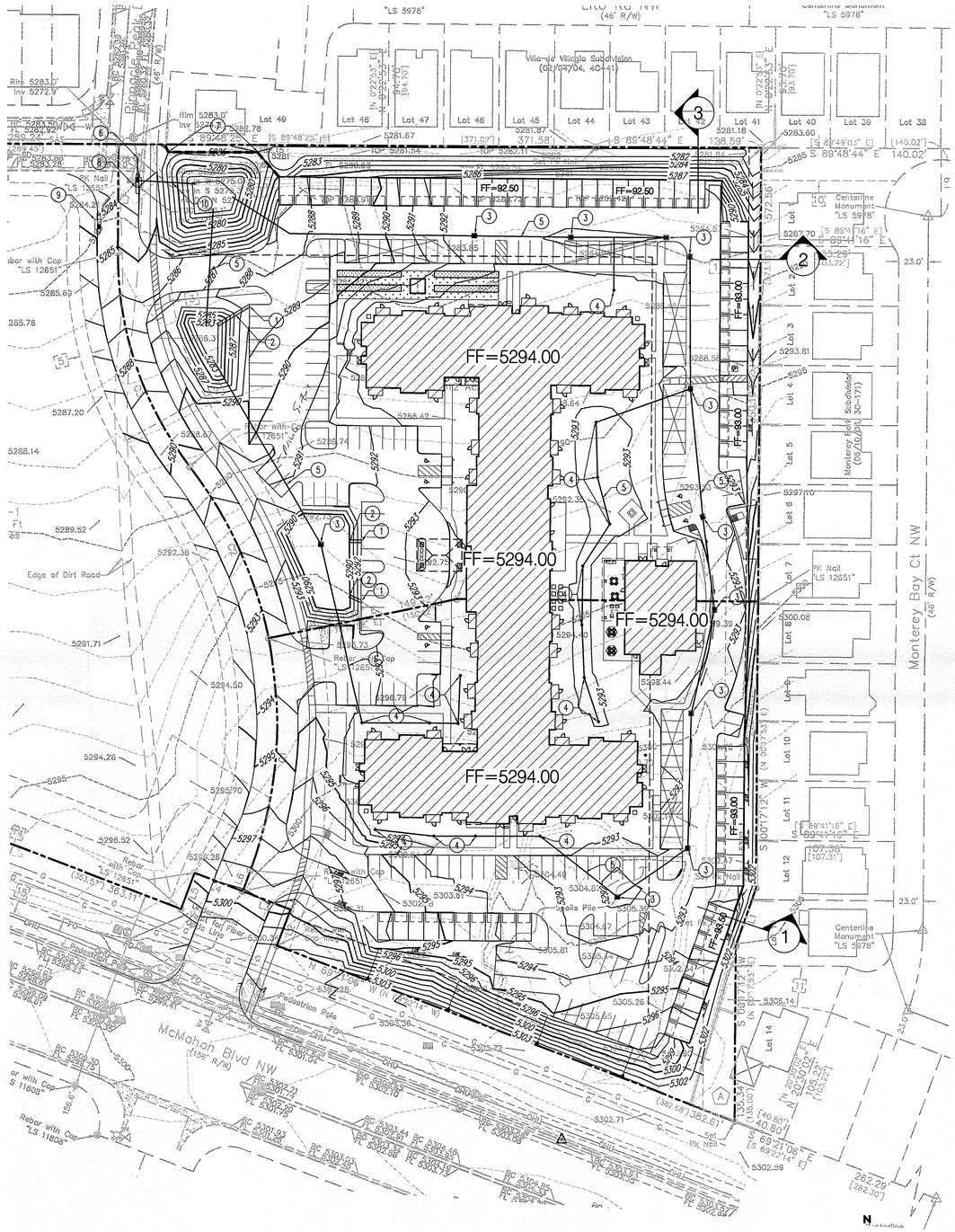
N.T.S. VICINITY MAP ZONE ATLAS A-11-Z



N.T.S. FLOODPLAIN MAP ZONE ATLAS A-11-Z

Grading Narrative

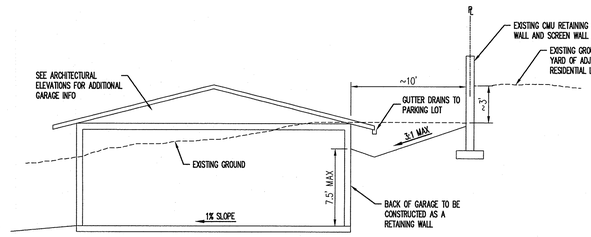
The site is currently undeveloped and contains sandy soil and native vegetation. The site slopes primarily from south to north at slopes ranging from 3% - 5%. The high point of the site is at the southeast corner at an elevation of approximately 5305. The low point of the site is at the northwest corner at an elevation of approximately 5281. Topography surrounding the site is similar with overall slopes to the north. Drainage from the area makes it's way to the Black Arroyo via existing city storm drains. McMahon generally runs along a ridgeline, with most of the land south of McMahon sloping to the south and draining to the Calabacillas Arroyo. The finished floor elevation of the main building and pool building are set to match the existing elevation at the middle of the site. The maximum proposed slopes on the site are 3H:1V. These slopes occur within the landscape areas on the south and north edges of the site. 3H:1V slopes also occur at the ponding areas along the west side of the site. These ponding areas are required in order to reduce the peak runoff coming from the site and to comply with the existing master drainage plan for the area.



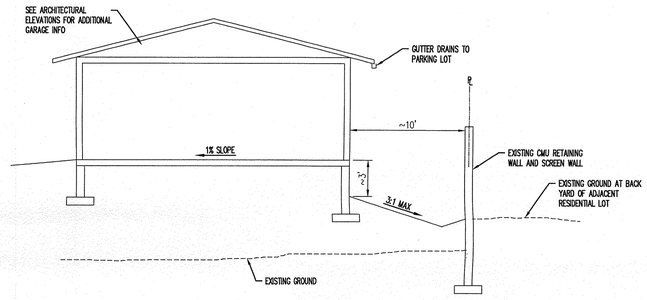
GRADING PLAN

○ KEYED NOTES

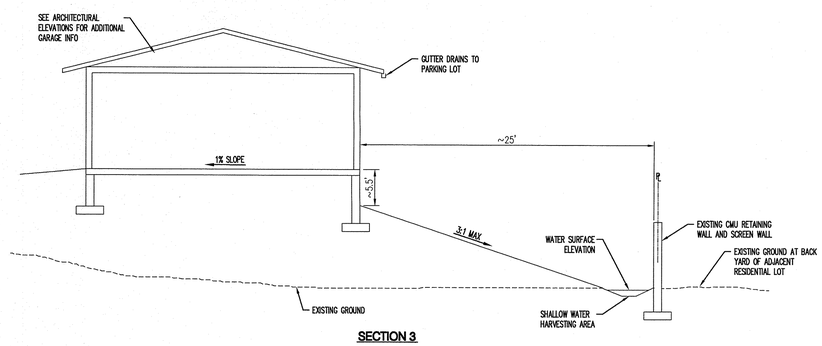
1. CURB OPENING FOR DRAINAGE
2. CONCRETE RUNDOWN
3. DROP INLET
4. AREA DRAIN
5. PRIVATE STORM DRAIN
6. CONNECTION TO EXISTING PUBLIC STORM DRAIN
7. CAST-IN-PLACE CONCRETE WALL. TOP OF WALL ELEVATION = 85.0
8. NEW PUBLIC TYPE "A" DROP INLET
9. FUTURE PUBLIC TYPE "A" DROP INLET
10. POND OUTLET, PRIVATE STORM DRAIN TIED TO BACK OF INLET



SECTION 1



SECTION 2



SECTION 3

AFFINITY

GRADING PLAN

Prepared For:
Inland Group
1620 N. Mamer Rd., Bldg. B
Spokane, WA 99203

Prepared By:
Consensus Planning, Inc.
Bohannan Huston, Inc.
The Architects Office, PLLC

BRUCE J. STIDWORTHY NEW MEXICO 14523 REGISTERED PROFESSIONAL ENGINEER 5/9/14

Bohannan Huston
www.bhinc.com 800.877.5332

Scale: 1" = 50'

NORTH 25 0 50 100

MAY 6, 2014 DRB SUBMITTAL

CONSENSUS PLANNING

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Fri, 9-May-2014 - 9:37:am, Plotted by: MSATCHES