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PLANNING . ENGINEERING . INFORMATION TECHNOLOGY

MEMORANDUM

TO: Ms. Michele Rosenfeld

FROM: Joe Mehra, PE, PTOE

SUBJECT: Conditional Use Application for Creative Arts and Language Center
 Traffic Statement

DATE: August 11, 2021

JOB: J-984

Introduction: Creative Arts and Language Center is applying for a conditional use application for a day care center located at 6607 Greentree Road in Bethesda, Maryland. The center currently operates as a day care center with 12 students. This application is to expand the center to 30 students. As per the LATR, if a site generates less than 50 peak hour person trips, then only a traffic statement is required and exempt from LATR traffic study requirements.

Site Characteristics: The single-family detached house at 6607 Greentree Road currently operates as a day care center with 12 students and as a residential living quarters for three of its staff (two full-time and one part-time). The owner proposes to expand the operations to include up to 30 students. The property has a circular one-way entrance drive on Greentree Road. The property is located approximately 500 feet from the nearest unsignalized intersection of Greentree Road and Fernwood Road. The existing site includes six (6) parking spaces on the property adjacent to Greentree Road and approximately four (4) unstriped parking spaces to the rear of the property, adjacent to Fernwood Road. The site location is shown in Exhibit 1. The conditional use application seeks approval of eleven (11) parking spaces: Five (5) are accessed from Greentree and six (6) (including two internal garage spaces) are accessed from Fernwood.

Proposed Operations: The day care operates generally Monday through Friday between the hours of 7:00 am to 6:00 pm. Staff is anticipated to be six full-time employees. The staffing hours for the six teachers are as follows:

Working Hours	Number of Staff
7:00 am to 3:00 pm	3
8:30 am to 4:30 pm	1
10:00 am to 6:00 pm	2

The anticipated student arrival and departure time for 30 students would be as follows:

Arrival		Departure	
Time	Estimated number of children	Time	Estimated number of children
7:00 am to 7:30 am	5	3:30 pm to 4:00 pm	5
7:30 am to 8:00 am	5	4:30 pm to 5:00 pm	7
8:00 am to 8:30 am	8	5:00 pm to 5:30 pm	9
8:30 am to 9:00 am	7	5:30 pm to 6:00 pm	9
9:30 am to 10:00 am	5		

The student pick-up/drop-off will be off the main entrance on Greentree Road. The staggered arrival and departure of students is anticipated to cause no queuing as described below. The staff will also monitor the pick-up/drop-off operations to ensure no queuing occurs onto the public street. Ingress/egress to the site will be safe and efficient.

Arrival/Departure Patterns: The vehicular and pedestrian arrival and departure patterns at the existing daycare center were observed on July 8, 2021. The arrival and departures including the time taken to drop-off or pick-up (dwell time) a student is noted for the 7:30 to 9:30 AM and 3:30 to 6:00 PM in the Table below. The drop-off time varied from a low of 2:15 (two minutes and 15 seconds) to a high of 6:45 with an average dwell time of approximately 4:09 (four minutes and 9 seconds). Similarly, the pick-up time varied from a low of 2:12 (two minutes and 12 seconds) to a high of 12:25 with an average dwell time of approximately 6:03 (six minutes and 3 seconds). The 12:25 is an outlier as most of the dwell times were less than 7 minutes. Excluding the outlier, the average dwell times were approximately 5:29 minutes. It should be noted that at no time during the AM and/or the PM period, there was any queue formed on-site.

Trip Generation: The vehicle trips in and out in 15-minute intervals are also shown in the Table below. The computed average vehicle trip rate/student is 1.33 during the AM and PM site peak hours. Using these trip rates, the vehicle trip generation for 30 students are estimated to be 40 during the AM and PM peak periods. However, the Day care center is proposing to stagger the arrival and departure of the students. The staggering of the

arrival and departure would result in a vehicle trip generation for 30 students at 30 and 36 during the AM and PM peak periods, respectively. This is the worst case situation wherein each student comes in one vehicle. There is a potential for two students coming in one vehicle if there are siblings in the center with the proposed expansion.

AM PEAK PERIOD JULY 8, 2021								
SL No.	Time		Dwell Time	AM VEHICLE TRIP GENERATION				
	Enter	Exit		TIME	IN	OUT	TOTAL	
1	7:29:09 AM	7:32:05 AM	02:56.0	7:30-7:45 AM	0	1	1	
2	7:57:36 AM	7:59:51 AM	02:15.0	7:45-8:00 AM	2	1	3	
3	7:59:23 AM	8:02:34 AM	03:11.0	8:00-8:15 AM	1	1	2	
4	8:11:50 AM	8:16:01 AM	04:11.0	8:15-8:30 AM	4	5	9	
5	8:17:02 AM	8:21:07 AM	04:05.0	8:30-8:45 AM	1	1	2	
6	8:17:20 AM	8:21:00 AM	03:40.0	8:45-9:00 AM	1	0	1	
7	8:17:29 AM	8:20:44 AM	03:15.0	9:00-9:15 AM	1	2	3	
8	8:19:54 AM	8:25:36 AM	05:42.0	9:15-9:30 AM	1	0	1	
9	8:37:10 AM	8:43:55 AM	06:45.0	TOTAL	11	11	22	
10	8:59:33 AM	9:04:05 AM	04:32.0	AM PEAK HOUR TRIP RATE/STUDENT				1.33
11	9:05:52 AM	9:09:34 AM	03:42.0					
12	9:28:47 AM	9:34:27 AM	05:40.0					
	TOTAL		49:54.0					
	AVERAGE		04:09.5					
PM PEAK PERIOD JULY 8, 2021								
SL No.	Time		Dwell Time	PM VEHICLE TRIP GENERATION				
	Enter	Exit		TIME	IN	OUT	TOTAL	
1	4:50:41 PM	4:52:53 PM	02:12.0	3:30 PM - 3:45 PM	0	0	0	
2	4:53:48 PM	4:58:31 PM	04:43.0	3:45 PM - 4:00 PM	0	0	0	
3	4:54:51 PM	5:03:40 PM	08:49.0	4:00 PM - 4:15 PM	0	0	0	
4	5:16:10 PM	5:23:49 PM	07:39.0	4:15 PM - 4:30 PM	0	0	0	
5	5:22:49 PM	5:25:26 PM	02:37.0	4:30 PM - 4:45 PM	0	0	0	
6	5:33:59 PM	5:41:26 PM	07:27.0	4:45 PM - 5:00 PM	3	2	5	
7	5:41:15 PM	5:45:41 PM	04:26.0	5:00 PM - 5:15 PM	0	1	1	
8	5:47:45 PM	5:52:24 PM	04:39.0	5:15 PM - 5:30 PM	2	2	4	
9	5:48:54 PM	6:01:19 PM	12:25.0	5:30 PM - 5:45 PM	2	1	3	
10	5:49:01 PM	5:51:24 PM	02:23.0	5:45 PM - 6:00 PM	5	3	8	
11	5:51:32 PM	6:01:04 PM	09:32.0	TOTAL	12	9	21	
12	5:54:38 PM	6:00:31 PM	05:53.0	PM PEAK HOUR TRIP RATE/STUDENT				1.33
	TOTAL		72:45:00					
	AVERAGE		6:03:50					

Queuing: The staggered arrival and departure of students is anticipated to minimize queuing and ensure that the queue does not extend on to Greentree Road. In the existing conditions, a maximum of five students arrived and departed in a 15-minute interval during the AM peak hour in five vehicles. Similarly, in the existing conditions, a maximum

of five students arrived and three departed in a 15-minute interval during the PM peak hour in five vehicles and three vehicles, respectively. There was no queue observed. Occasionally, a vehicle waited along the driveway to allow another vehicle to pullout of the parking space. There was adequate parking at all times. At no time, a vehicle had to wait for a parking spot to become vacant. The proposed expansion will have a staggered arrival and departure pattern resulting in a maximum of ten students arriving or departing in a 30-minute interval or potentially five students in a 15-minute interval. This would mirror the existing conditions in which a maximum of five students arrived or departed in a 15-minute period. No queues were formed or observed in the existing conditions and no queues are expected in the future. It should be noted that the circular driveway has a queuing capacity of 4 vehicles. This capacity was never used during the survey period.

The survey of existing traffic and parking conditions revealed the following parking characteristics with respect to the arrival, departure and dwell times associated with the student drop-offs and pick-ups.

Parking Characteristics (Existing Conditions)		
Measures	AM Conditions Time(mm:ss)	PM Conditions Time(mm:ss)
Average Arrival Rate	10:52.5	05:48.8
Average Peak Hour Arrival Rate	05:39.1	04:48.5
Average Departure Rate	11:07.5	06:13.3
Average Peak Hour Departure Rate	06:17.7	08:07.3
Average Dwell Time	04:10.0	06:03.8
Average Peak Hour Dwell Time	04:08.0	06:20.1

The proposed expansion of the site to 30 students is expected to generate a total of 60 trips during the AM and PM periods. The arrival rate and departure rates were estimated based on the anticipated arrivals and departure of students as discussed under the section Proposed Operations. This would translate to arrival and departure rates corresponding to the time periods as shown in the table below.

AM Conditions - Estimated Rate (mm:ss)			PM Conditions - Estimated Rate (mm:ss)		
Time	Arrival Rate	Departure Rate	Time	Arrival Rate	Departure Rate
7:00 am to 7:30 am	06:00	06:00	4:00 pm to 4:30 pm	06:00	06:00
7:30 am to 8:00 am	06:00	06:00	4:30 pm to 5:00 pm	04:17	04:17
8:00 am to 8:30 am	03:45	03:45	5:00 pm to 5:30 pm	03:20	03:20
8:30 am to 9:00 am	04:17	04:17	5:30 pm to 6:00 pm	03:20	03:20
9:00 am to 9:30 am	06:00	06:00			

The arrival and departure rates were then used to compute future trips with the proposed expansion. The trips associated with proposed expansion for the AM and PM periods are shown in the table below.

Estimated AM Trips				Estimated PM Trips			
TIME	IN	OUT	TOTAL	TIME	IN	OUT	TOTAL
7:00 AM - 7:15 AM	2	1	3	4:00 PM - 4:15 PM	2	1	3
7:15 AM - 7:30 AM	3	3	6	4:15 PM - 4:30 PM	3	3	6
7:30 AM - 7:45 AM	2	2	4	4:30 PM - 4:45 PM	3	3	6
7:45 AM - 8:00 AM	3	3	6	4:45 PM - 5:00 PM	4	3	7
8:00 AM - 8:15 AM	4	3	7	5:00 PM - 5:15 PM	4	4	8
8:15 AM - 8:30 AM	4	4	8	5:15 PM - 5:30 PM	5	5	10
8:30 AM - 8:45 AM	3	4	7	5:30 PM - 5:45 PM	4	4	8
8:45 AM - 9:00 AM	4	4	8	5:45 PM - 6:00 PM	5	5	10
9:00 AM - 9:15 AM	2	2	4	Total	30	28	58
9:15 AM - 9:30 AM	3	3	6				
Total	30	29	59				

The staggered arrival and departure will ensure that the parking demand is met at all times during the AM period and therefore no queuing is expected for any of the peak 15-minute period. During the PM period, for most part the parking demand is met except for the two 15-minute intervals, 5:15 PM – 5:30 PM and between 5:45 PM – 6:00 PM. It is estimated that a vehicle may have to wait for a parking space inside the property. The staggered arrival and departure of students is anticipated to improve parking utilization, reduce dwell time and minimize any queuing on site. No queue is expected to extend on to Greentree Road at any time in the AM and/or the PM periods.

Conclusions: The proposed expansion of the site to 30 students is expected to generate less than 50 total weekday peak-hour person trips (vehicular, transit, bicycle, and/or pedestrian). The project is exempt from LATR traffic study requirements. Based on the survey and observations of the existing site operations, there were no queues and no vehicle had to wait for a parking spot. Since the arrival and departure of students are being staggered, a queue of one vehicle on-site is expected to occur during the two 15-minute intervals, 5:15 PM – 5:30 PM and between 5:45 PM – 6:00 PM. Therefore, no queues will extend off-site on to Greentree Road with the expansion to 30 students. It should be noted that queuing is available for four vehicles on the circular driveway, if needed. The staff will also monitor the pick-up/drop-off operations to ensure no queuing extends onto Greentree Road. Ingress/egress to the site will be safe and efficient as in the existing conditions.

Please contact me if you have any questions.

ADA ACCESS NOTES

- THE PROPOSED ADA RAMP, STAIRS, AND ACCESSIBILITY NETWORK IS A SUITABLE ADA DESIGN. THIS DOCUMENT IS NOT INTENDED TO BE USED AS A CONSTRUCTION DOCUMENT.
- CONTRACTOR SHALL CONFIRM ALL CONSTRUCTED RAMP/WALKWAY/TREAD SLOPES ARE WITHIN TOLERANCES OF ADA STANDARDS FOR ACCESSIBLE DESIGN PRIOR TO DEMOBILIZATION. CONTRACTOR SHALL REPAIR/REPLACE ANY RAMP SLOPES FOUND TO BE OUT OF TOLERANCES AT CONTRACTOR'S TIME AND EXPENSE. ALL RAMP SLOPES SHALL HAVE A MAXIMUM RAMP SLOPE OF 8.33%, A MAXIMUM RUNNING SLOPE OF 5.00%, AND MAXIMUM CROSS SLOPE OF 2.08%. LANDINGS SHALL HAVE A MAXIMUM SLOPE IN EVERY DIRECTION OF 2.08%.
- THE PROPOSED STAIRCASE TO THE REAR PLAYGROUND AREA SHALL BE ADA COMPLIANT. SEE DETAILS, THIS SHEET.
- THE PROPOSED ADA ACCESSIBLE PARKING SHALL BE 11' WIDE AND REACH THE FULL LENGTH OF THE HANDICAP VEHICLE IN WHICH THE SPACE SERVES. THE ADA ACCESS AISLE SHALL BE 5' WIDE AND EXTEND TO THE FULL LENGTH OF THE ADA PARKING SPACE.
- SEE THIS SHEET FOR TYPICAL ADA DETAILS.
- THERE ARE NO SIDEWALKS ADJACENT TO THE EXISTING FACILITY. NO SIDEWALK CONNECTIONS FROM PUBLIC ARE PROPOSED AS PART OF THIS APPLICATION.
- ANY PROPOSED ADA UPGRADES SHALL BE COORDINATED WITH CORRESPONDING PARKING UPGRADES.
- THIS PLAN IS INTENDED TO SHOW EXTERIOR ADA COMPLIANCE. O'C&L MAKES NO STATEMENTS REGARDING ADA COMPLIANCE IN THE BUILDING INTERIOR. FINAL DESIGN/MATERIALS SHALL BE SPECIFIED ON FINAL DESIGN PLANS.
- ADA SIGNAGE AND STRIPING SHALL BE IN ACCORDANCE WITH APPLICABLE STANDARDS.

PARKING UPGRADE NOTES

- THE PROPOSED PARKING UPGRADES ARE INTENDED TO SUPPORT THE SUBJECT CONDITIONAL USE APPLICATION. THIS PLAN IS NOT INTENDED TO BE USED AS A CONSTRUCTION DOCUMENT.
- IN ACCORDANCE WITH THE MONTGOMERY COUNTY ZONING ORDINANCE, ALL REGULAR PARKING SPACES SHALL REACH A MINIMUM OF 8.5' WIDE AND 18' LONG WITH THE EXCEPTION OF THE DESIGNATED COMPACT PARKING SPACE. THE COMPACT PARKING SPACES SHALL BE 7.5' WIDE AND 16.5' LONG.
- THE ON-SITE PARKING SHALL INCLUDE A TOTAL OF 11 PARKING SPACES, INCLUDING 8 STANDARD SPACES, 1 ADA SPACE, AND 2 COMPACT SPACES. THE TOTAL NUMBER OF REQUIRED SPACES IS BASED ON AN APPROXIMATE GROSS FLOOR AREA OF 2,819 SF FOR THE DAY CARE USE. THE APPLICANT IS PROPOSED TO CONDITION THE APPROVAL SUCH THAT THOSE LIVING IN THE RESIDENTIAL PORTION OF THE HOUSE ARE DAY CARE EMPLOYEES; AS SUCH, ADDITIONAL PARKING SPACES FOR THE RESIDENTIAL USE ARE NOT REQUIRED AND SHALL NOT BE PROVIDED.
- SEE THE ACCOMPANYING STATEMENT OF OPERATION FOR FURTHER PARKING AND LOT USE DETAILS.
- STRIPING SHALL BE IN ACCORDANCE WITH MONTGOMERY COUNTY STANDARDS AND IS NOT CONSIDERED DISTURBANCE.
- NO ADDITIONAL HARDSCAPE IS PROPOSED TO CREATE THE PARKING AREA, ADA ACCESSIBLE ENTRANCE, OR DRIVE AISLES.
- SEE APPROVED FIRE ACCESS PLAN AND STATEMENT OF PERFORMANCE-BASED JUSTIFICATION FOR FIRE ACCESS DETAILS, PROPOSED IDENTIFICATION SIGNAGE, AND FDC, WATER SERVICE CONNECTIONS, AND HYDRANTS ARE SHOWN PER APPROVED FIRE ACCESS PLAN AND SHALL BE PERMITTED AS APPROPRIATE. THE LOCATION OF THE FDC IS APPROXIMATE AND IS SHOWN ON THIS DRAWING FOR INFORMATION ONLY.

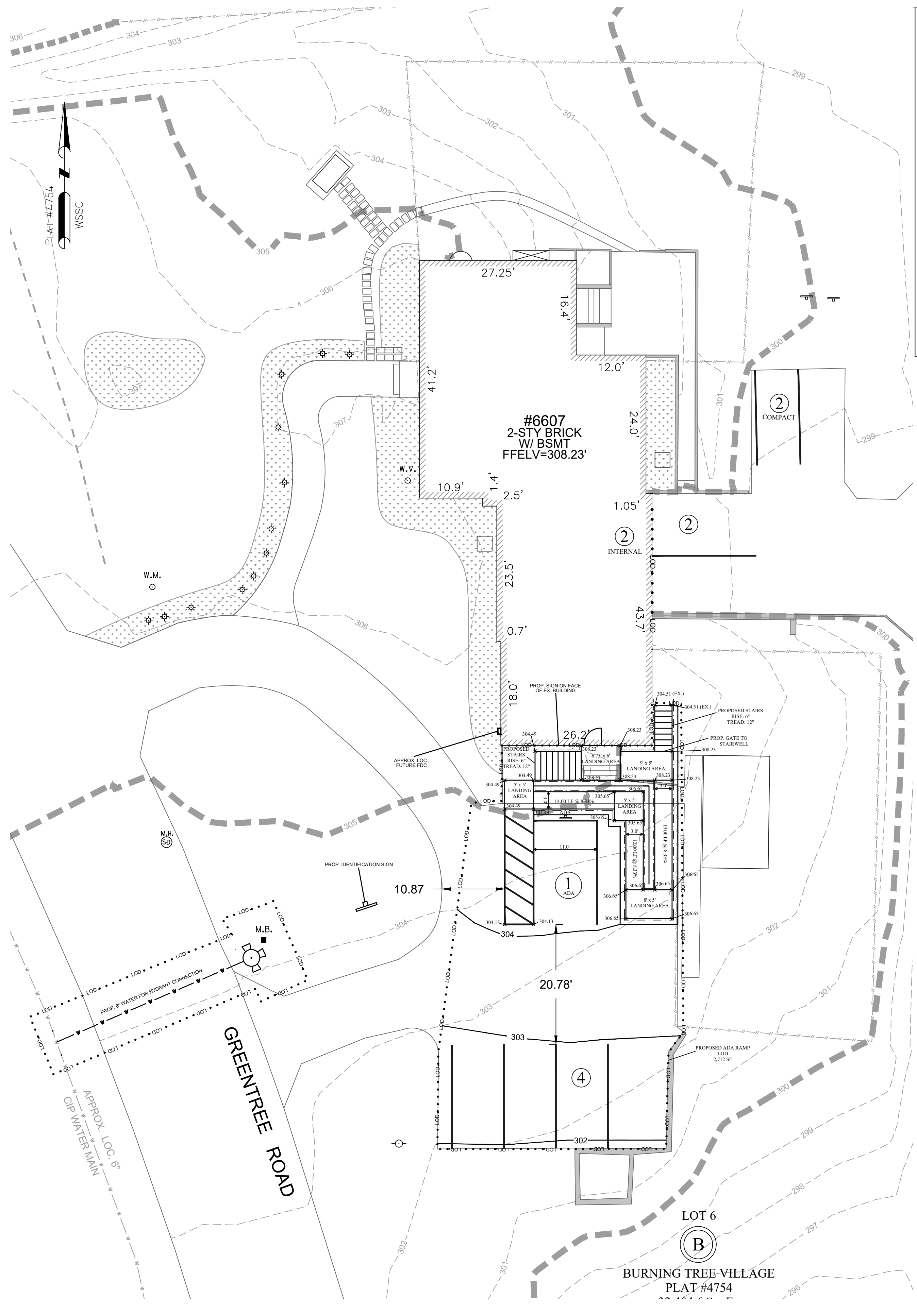
PARKING REQUIREMENTS & DIMENSIONS TABLE

	REQUIRED NUMBER OF PARKING SPACES	MINIMUM LENGTH (LF)	MINIMUM WIDTH (LF)
STANDARD SPACES	8 SPACES	18	8.5
ADA VAN ACCESSIBLE SPACE	1 SPACE	18	16 (INCLUDING ACCESS AISLE)
COMPACT SPACES	20% (MAX.) (2 SPACES PROPOSED)	16.5	7.5

NOTE: TWO STANDARD SPACES ARE LOCATED INSIDE THE EXISTING BUILDING, ACCESSED VIA GARAGE DOORS OFF FERNWOOD ROAD. SEE PLAN VIEW AND STATEMENT OF OPERATION FOR ADDITIONAL INFORMATION.

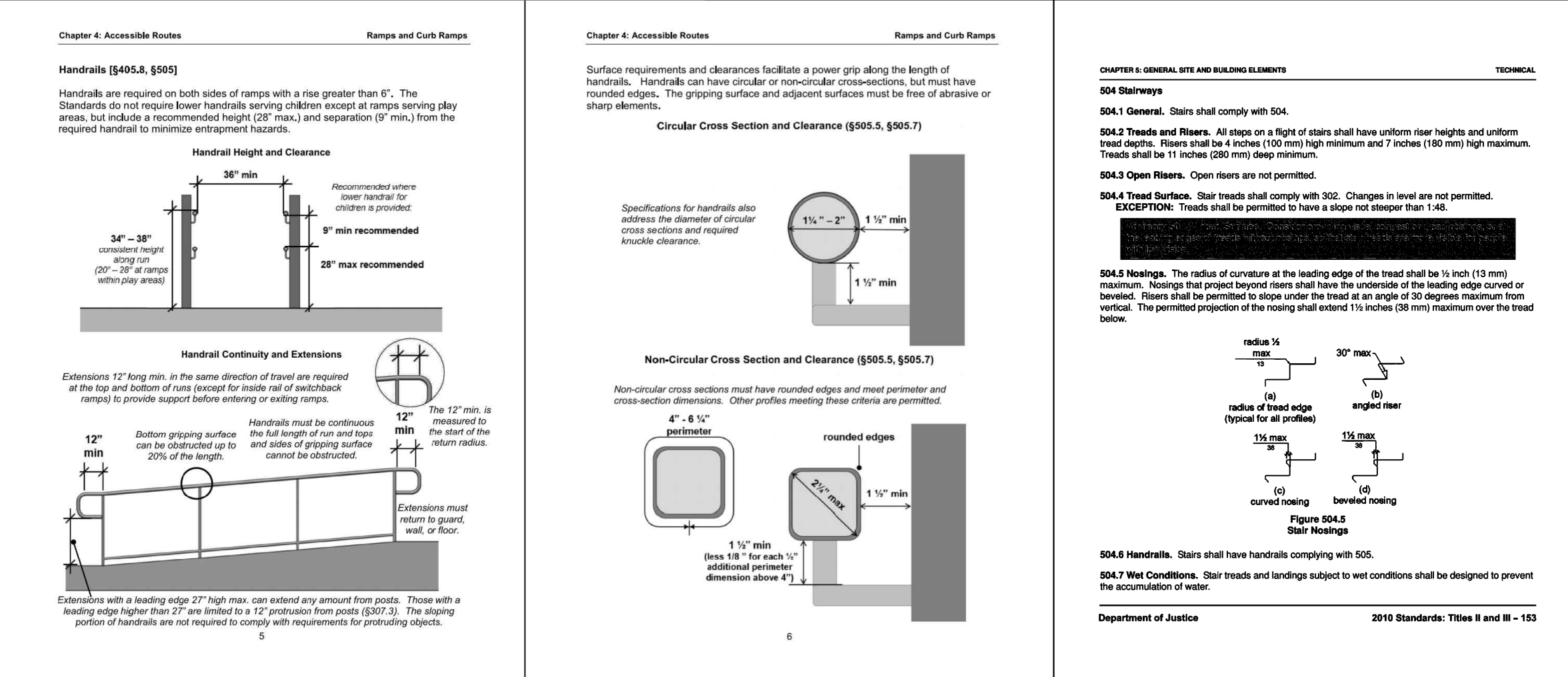
PROPOSED CONDITIONS LEGEND

- THESE STANDARD SYMBOLS WILL BE FOUND IN THE DRAWING
- PROPERTY LINE
 - PROPOSED HANDRAIL
 - LIMITS OF DISTURBANCE
 - 300 PROPOSED GRADED ELEVATION
 - 300 PROPOSED CONTOUR
 - 300 EXISTING CONTOUR
 - PROPOSED WATER LINE
 - EXISTING WATER MAIN
 - PROPOSED STRIPING FOR PARKING
 - (S) PROPOSED PARKING COUNT
 - PROPOSED SIGN
 - PROPOSED FIRE HYDRANT



PROPOSED ADA AND PARKING UPGRADES
SCALE 1"=10'

TYPICAL ADA ACCESSIBLE RAMP/STAIRS DETAILS
NOT TO SCALE



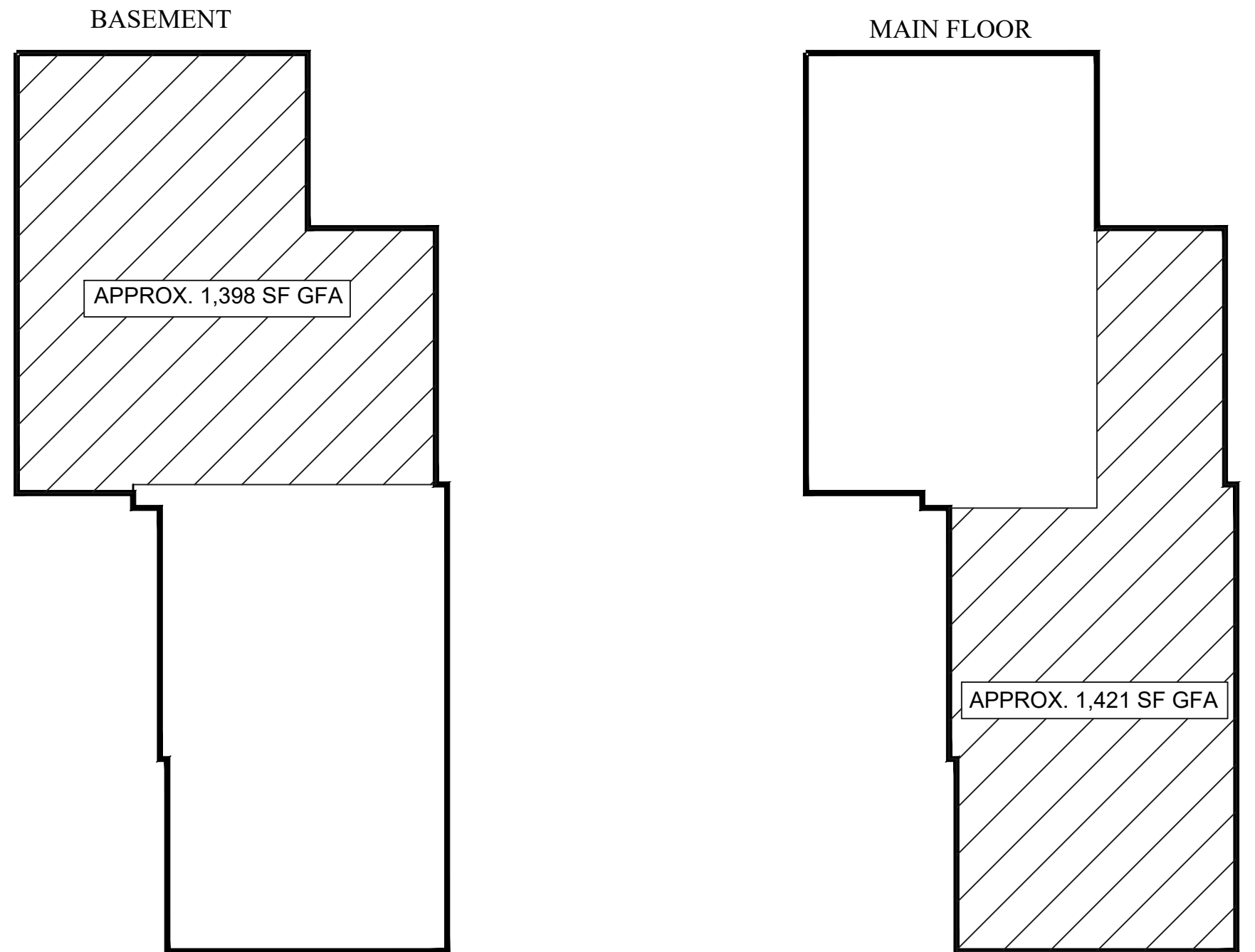
TYPICAL HANDRAIL DETAILS

HANDRAIL CUTSHEET SHALL BE SUBMITTED TO OWNER IN ADVANCE OF PROCUREMENT. ALL HANDRAILS SHALL BE SET IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

TYPICAL TREAD DETAIL

STAIR TREAD SHALL BE CONSTRUCTED IN ACCORDANCE WITH FIGURE 504.5 (a) WITH A 6" (six inch) RISER AND 11" (eleven inch) TREAD.

DAY CARE USE AREA MAP
N.T.S.



AREAS SHOWN ARE CURRENTLY USED OR PROPOSED TO BE USED FOR THE DAY CARE FACILITY.
NO PORTIONS OF THE SECOND FLOOR ARE UTILIZED FOR DAYCARE AREAS.

Construction Consultants,
Engineers, Surveyors
17904 Georgia Avenue, Suite 302
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Tel: (301) 924-4570
Fax: (301) 924-4572

O'C&L
O'CONNELL & LAWRENCE, INC.

LOT 6, BLOCK B
6607 GREENTREE ROAD
PLAT #4754
TAX MAP GP 51
7TH ELECTION DISTRICT
MONTGOMERY COUNTY, MARYLAND

**SITE PLAN FOR
CONDITIONAL USE**

REVISION	DATE	BY
1	8/11/21	DGT
2	4/1/21	DGT
PER STAFF COMMENTS		
PER PRE-SCREEN COMMENTS		

DESIGN BY: JR
DRAWN BY: GHJR
CHECKED BY: DT
DATE: 3/1/2021
SCALE: 1" = 10'
PROJECT/FILE NO: 020-021
SHEET NO: 2 of 2

