

BEFORE THE NATIONAL GREEN TRIBUNAL(SZ)

AT CHENNAI
O.A. NO 189 OF 2020

Anumula Revanth Reddy

...Applicant

-Vs-

The State of Telangana
Rep.by its Chief Secretary
Secretary, Hyderabad
And 8 Others

....Respondents

INDEX

S.No	Description	Page Nos.
1	Additional Report from Irrigation Department	1
2	structural Drawing at Storm Water Drain constructed by the Developer	2
3	Design Calculations of Storm Water Drain	3-4
4	GSI Toposheet No.E44M7 Extracts	5-6
5	S1te Inspection Photo	8

Place: Hyderabad
Date: 28/11/2022

H.Yasmeen Ali
Council for Respondent

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ADDITIONAL REPORT BY THE 3rd RESPONDENT

As per the Order passed by the Hon'ble Tribunal (SZ), Chennai dated 11.10.2022, the report is filed on behalf of the 3rd Respondent are as follows:

1. It is to submit that, Rainfall with 100mm per hour with peak runoff is categorized as cloud bursts. The catchment area is worked out & based on the above the discharge is arrived and correlate with the existing constructed storm water drain. The constructed storm water drain is sufficient to carry the water even in cloud bursts situation more than 100mm.
2. As the mentioned in the above paragraphs it is not required for detail study as the constructed storm water drain is sufficient to carry the water even in cloud bursts situation more than 100mm.
3. Further, it was instructed to verify the adequacy of the existing drainage structures to accommodate the discharges to be occurred due to the cloud bursts and also submit the readiness incase of cloud bursts. In this regard, the Deputy Executive Engineer, I&CADD., Irrigation Sub Division No.4, Hyderabad has reported that, a natural storm water drain was constructed by the Developer to dispose off the water received from the catchment. Already the irrigation department have taken prior steps for the storm water drains.
4. Further, it is to submit that, the undersigned has inspected the said site along with Deputy Executive Engineer, I&CADD., Irrigation Sub Division No.4, Hyderabad and concerned Assistant Executive Engineer, during the inspection, collected the details of storm Water drain which is already constructed. The detail of the drain is enclosed herewith.
5. Further, it is not required for the extra provisions or additional box-type culverts as the said location to dispose the rain water in cloud bursts situation.

Necessary calculates & site inspection photos are enclosed herewith.


Deponent
Executive Engineer, I&CAD.,
Irrigation Division No. 1,
Hyderabad.

PROJECT : My Home Avatar
DESIGN OF STORM WATER DRAIN

Rational formula for calculating runoff $Q = (C I A)$

Q-Runoff in m^3/sec

C- Co-efficient of run off

I - Intensity of rainfall in mm/ hr.

A - Drainage area in sq.mtrs.

Run-off co-efficient for various types of surfaces

Open grounds, unpaved street : 0.10 to 0.30

Parks, lawns, gardens : 0.10 to 0.25

Macadam roads, pavements : 0.25 to 0.70

Asphalt pavements : 0.85 to 0.90

Water tight roof surface : 0.90 to 0.95

Storm frequency

Intensity of precipitation.

Time of concentration

Manning's formula for calculating the size of drain

$Q = A \times V$

$V = (1 \times R^{2/3} \times S^{1/2}) / n$

V = Velocity of flow in m/sec.

n = Co-efficient of friction, 0.013

R = Hydraulic mean depth in mts.

$R = A / P$

A = area of cross section in m^2

(Top width + bottom width)/2 x depth of flow for trapezoidal Section

Bottom width x depth of flow for rectangular section

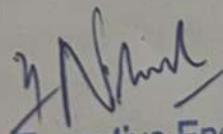
P = Wetted perimeter in meters

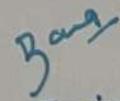
Bottom width + $(2 \times \sqrt{2} \times \text{depth of flow})$ for trapezoidal section = $B + 2 \times \sqrt{2} \times D$

Where D = depth of flow

Bottom width + $2 \times \text{depth of flow}$ for rectangular section = $B + 2D$

S = Hydraulic bed slope.


Asst. Executive Engineer I & CADD.,
Irrigation Section, Gandipet


Dy. Executive Engineer I & CADD.,
Irrigation Sub Division No. 4, Hyderabad

DESIGN

Intensity of rainfall " I "	100 mm/hr
"C" Run-off coefficient for Roof area	0.9
"C" Run-off coefficient for Hardscape area	0.7
"C" Run-off coefficient for Softscape area.	0.4

Total Plan/Roof Area 2,85,622 sq.mtr.

$$\text{Discharge} = K = C \times I \times A_1$$

Hence,

$$\text{Discharge} = K = 0.9 \times 100 \times 285622 \quad 7.141 \text{ cum/sec}$$

Total Hardscape Area

2,925 sq.mtr

$$\text{Discharge} = L = C \times I \times A_2$$

Hence,

$$\text{Discharge} = L = 0.7 \times 100 \times 2925 \quad 0.057 \text{ cum/sec}$$

Total Softscape Area

4,731 sq.mtr

$$\text{Discharge} = M = C \times I \times A_3$$

Hence,

$$\text{Discharge} = M = 0.4 \times 100 \times 4731 \quad 0.053 \text{ cum/sec}$$

$$\text{Actual total run off } Q = K+L+M$$

7.250 cum/sec

Actual =

7.250 cum/sec

$$\text{Design of RCC drain } Q = A \times V$$

$$\text{Area of flow } A = B \times D$$

$$\text{Assume depth of flow for a rectangular drain ' D ' \quad 1.280 \text{ mtrs.}$$

$$\text{Also assume breadth to depth ratio} \quad 1.500$$

$$\text{So, breadth of drain} = B = 1.5 D \quad 1.920 \text{ mtrs.}$$

$$\text{Area of flow} = A = 1.92 \times 1.28 \quad 2.458 \text{ Sqm.}$$

$$\text{Wetted perimeter} = P = B + 2D$$

$$\text{Perimeter} = P = 1.92 + 2 \times 1.28 \quad 4.480 \text{ mtrs.}$$

$$\text{Wetted Radius} = R = A / P$$

$$\text{Wetted Radius} = R = 2.4576 / 4.48 \quad 0.549 \text{ mtrs.}$$

Manning's formula for calculating the size of drain

$$\text{Mannings Formulae} = Q = (A \times R^{2/3} \times S^{1/2}) / n$$

Where,

$$\text{Slope of drain} = S = 1 \text{ in } 300 \quad 300.000$$

$$\text{Mannings constant (friction coefficient) " n " for RCC Drains} \quad 0.013$$

Design Discharge

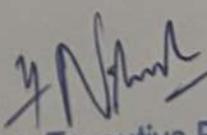
$$= 2.4576 \times (0.549)^{2/3} \times (1 / 300)^{1/2} / 0.013 \quad 7.314 \text{ cum/sec}$$

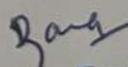
Calculated size :-

Width of drain is 1920 mm

Depth of drain is 1280 mm

$$\text{Velocity} = V \quad 2.976 \text{ m/s}$$


Asst. Executive Engineer I & CADD.,
Irrigation Section, Gandipet


Dy. Executive Engineer I & CADD.,
Irrigation Sub Division No. 4, Hyderabad



Name: Create New Type...

Feature Type: Unknown Area Type

Feature Layer (Right Click for More Options)

User Created Features

Feature Description

Use Custom Description

Feature Style

Use Default Style for Selected Feature Type

Specify Style to Use When Rendering Feature

Custom Style

Feature Attributes

Attribute Name	Attribute Value
PERIMETER	2.159 km
ENCLOSED_AREA	0.118 sq mi

Add Edit Delete Add File Link(s) Add Time Stamp

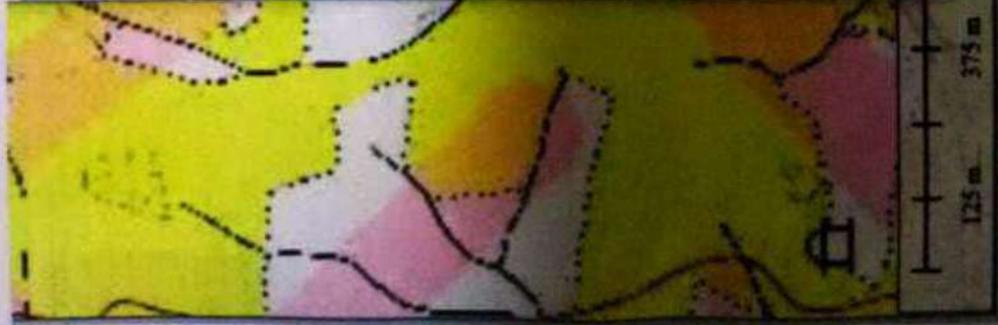
Add/EIR Notation...

Attribute Mode: Use Layer Setting Extrusion Mode: Unspecified

Apply Settings from Selected Feature Apply Settings from Previous Feature

Find By Through Path Copy Attr Names from Feature Layer

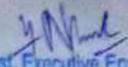
Automatically apply these settings to new features of the same type



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